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THE
Gardeners Dictionary :
Containing the METHODS of
CULTIVATING *and* IMPROVING
THE
Kitchen, Fruit, *and* Flower-garden,
AS ALSO THE
Physic-garden, Wilderness, Conservatory,
AND
VINEYARD.

Abridg'd from the FOLIO EDITION,
By the AUTHOR, PHILIP MILLER, F.R.S.
*Gardener to the Worshipful Company of Apothecaries, at
their BOTANIC-GARDEN, in Chelsea.*

V O L. III.

L O N D O N :

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P R E F A C E.

 *S the First Volume of the Gardeners Dictionary, which was abridged, has met with a kind Reception from the Public, so, I hope, there requires no Apology for the publishing this Abridgment of the Second ; since, without it, the former Work would have been incomplete ; and it is only doing Justice to the Purchasers of that.*

In this Volume I have observed the same Method as in the Two former ; which was, to insert the practical Part of Gardening contained in the Second Volume of the Folio Edition ; but have omitted the Catalogues of Plants, and some other Articles, which would have swelled this Volume to a Size much larger than either of the former ;

P R E F A C E.

and also have lessened the Value of the Folio Edition, which is very far from my Intention.

But as I had, in the former Abridgment, omitted the Article of Wines, therefore in this I have added an Abstract of what was published on that Head in the First Volume of the Folio Edition; whereby this Work will be rendered more complete: for as the planting of Vineyards in England, has of late Years greatly obtained, so it is become more necessary for Gardeners to understand the Management of Vineyards, and the Method of making Wines; and as this Abridgment was chiefly calculated for their Use, I hope the Volume will meet with a favourable Reception.



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T H E

Gardeners Dictionary.

V O L. III.

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ABIES; The Firr-tree.

The additional Species, which were omitted in the former Volumes, are;

1. ABIES foliis prælongis, pinum simulans. Raii Hist. Firr-tree, with long Leaves, resembling those of the Pine-tree.

2. ABIES orientalis, folio brevi et tetragono, fructu minimo, deorsum inflexo. Tourn. Cor. Eastern Firr-tree, with short square Leaves, and small Fruit hanging downward.

3. ABIES major Sinensis, pectinatis taxi foliis subtus cæsis, conis grandioribus sursum rigentibus, foliorum et squamarum apiculis spinosis. Pl. Amalth. Great Firr-tree of China, with Yew Leaves, large Cones growing upright, and the Points of the Leaves prickly.

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4. ABIES maxima Sinensis, pectinatis taxi foliis, apiculis non spinosis. Pluk. Amalth. Greatest China Firr-tree, with Yew Leaves, not prickly at their Points.

These Sorts are, at present, very rare in England; the first was formerly growing in the Garden of Mr. Edward Morgan in Westminster, a Branch of which Tree was given to Mr. Ray, by Mr. Doody, who was a very curious Botanist. The Leaves of this Tree are much longer than those of any other kind of Firr yet known, but it hath not as yet produced any Cones in this Country.

The second Sort was discovered in the Levant, by Dr. Tournefort, who sent the Cones to the Royal Garden at Paris. This Kind of Firr is very common in the Mountains of the Archipelago, from whence the Cones may be easily procured.

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The other two Sorts are very common in *China*, from whence I have received Seeds and Branches of both Kinds; but the Seeds having been taken out of their Cones before they were brought over, had dried up, and lost their Germ, so that none of them grew; therefore, whoever is desirous to propagate any of the coniferous Trees should have the Cones gathered when ripe, (before they open, and let out the Seeds) in which the Seeds will continue fresh a long time: For if the Seeds are taken out of the Cones, they will not retain their growing Quality, so as to be transported from one Country to another, at a great Distance.

All the Sorts of Firrs are propagated from Seeds, which may be sown after the manner directed in the former Volumes of this Dictionary. The only Difference to be observed in their Culture, is, to shelter such Sorts as come from a warmer Country, for two or three Winters, while they are young; after which time, all the Sorts of Firrs yet known will thrive in the open Air in *England*: for there are none of them Natives of very hot Countries, and those which grow in Countries ten or fifteen Degrees more to the South than *England*, are always observed on Hills and Mountains, where they are exposed to sharp Frosts in Winter.

Most of the Firrs yet known delight in a pretty strong deep Soil; though they will grow tolerably well on a light dry Soil for a few Years; but it has been often observed, That when the Trees are arrived to the Height of twenty or thirty Feet, on such a Soil, they lose their Verdure, and their under Branches begin to decay; after which time they seldom make any farther Progress, and many times a whole Plantation will suddenly decay. Nor will any

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of the Kinds of Firr thrive in the Smoak of *London*: I don't remember to have seen one of these Trees of any Magnitude near *London*, though there are many of them yet remaining in some old Gardens, which have been many Years standing, but are not above twenty Feet high, and in a very declining State.

The common Firr, which is a Native of *Sweden* and *Norway*, always grows in the Plains and low Grounds, where they have a great Depth of strong loamy Soil, in which Places they arrive to a very great Height, though they are almost buried in Snow for several Months in Winter; so that these Trees might be cultivated in the low strong Lands in the North of *England*, and in *Scotland*, where they would greatly improve such Estates.

The several Sorts of Firrs, which are Natives of *America*, do generally grow upon low springy Soils, and upon a light Ground, and such of them which have been propagated in *England*, thrive exceedingly upon low, light, moist Soils; whereas those which have been planted on a drier Soil, have made very little Progress, and in very dry Seasons many of them have quite perished, where they were not duly supplied with Water. These are all very hardy in respect to Cold, so that they may be planted into the full Ground, when they are about a Foot high, into the Places where they are designed to remain.

The silver Firr will thrive on a rocky Soil extremely well, provided the Rock be not too dry; in which Case they are very subject to die in very dry Seasons, as hath been the Fate of some Plantations of these Trees a few Years since, which were grown to a large Size. The largest Trees of this Kind which I have seen growing, were at *Farley* in *Hampshire*; these were above

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above eighty Feet high, and from ten to eleven Feet in Circumference. They grew in a strong red clayey Soil, and upon Inquiry I found they had been planted near fourscore Years.

ABROTANUM; Southernwood.

The *Species* omitted in the former Volumes, are;

1. ABROTANUM *latifolium inodorum*. C. B. P. Broad-leav'd Southernwood, without Scent.

2. ABROTANUM *mas angustifolium incanum*. C. B. P. Hoary narrow-leav'd Southernwood.

3. ABROTANUM *campestre, cauliculis albicantibus*. C. B. P. Fine-leav'd wild Southernwood, with whitish Stalks.

4. ABROTANUM *campestre, cauliculis rubentibus*. C. B. P. Fine-leav'd wild Southernwood, with reddish Stalks.

5. ABROTANUM *campestri simile Tingitanum*. H. L. Tangier Southernwood, resembling the wild Sort.

6. ABROTANUM *campestre incanum, carlinæ odore*. C. B. P. Hoary Field Southernwood, with a Smell like the Carline Thistle.

7. ABROTANUM *humile, corymbis majoribus aureis*. H. R. Par. Dwarf Southernwood, with larger golden Flowers.

8. ABROTANUM *Hispanicum, absinthii Pontici folio*. Tourn. Spanish Southernwood, with a Pontic Wormwood Leaf.

9. ABROTANUM *Hispanicum maritimum, folio crasso splendente et rigido*. Tourn. Spanish Sea Southernwood, with a thick, shining, stiff Leaf.

10. ABROTANUM *mas ex Surinam, molli hirsutæ canescens*. Pluk. Almag. Hoary Male Southernwood from Surinam.

11. ABROTANUM *elatius subincanum, foliis creberrimis, secundum caulem in metæ formam fastigiatis*.

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Pluk. Almag. Taller hoary Southernwood, with frequent Leaves gathered into a kind of Pyramid.

12. ABROTANUM *orientale annuum, absinthii minoris folio*. Tourn. Cor. Annual Eastern Southernwood, with a Leaf of the lesser Wormwood.

13. ABROTANUM *orientale, chamæmeli folio*. Tourn. Cor. Eastern Southernwood, with a chamomile Leaf.

14. ABROTANUM *Africanum, foliis argenteis angustis, floribus spicatis, capitulis copioso tomento donatis*. D. Sherard. Raii Supp. African Southernwood, with narrow silver Leaves, spiked Flowers, and very woolly Heads.

15. ABROTANUM *Africanum, foliis argenteis angustis, floribus umbellatis, capitulis tomentosis*. Raii Supp. African Southernwood, with narrow silver Leaves, umbellated Flowers, and woolly Heads.

The first and second Sorts may be propagated by Slips or Cuttings, in the same manner as hath been directed for the two former, in the first Volume. These are at present more rare in the English Gardens, though they are equally hardy with the other Sort; and may be planted for Under-shrubs, in Quarters of low growing Trees, where, by the Diversity of their Leaves, they will afford an agreeable Variety.

The third and fourth Sorts grow commonly in Germany, Italy, and Narbonne, by Way-sides, and in barren Places, and are also found in England by the Way-side from Newmarket to Lynn, near a Village called Elden. These seem to be but Varieties from each other, and only differ in the Colour of their Stalks. They are seldom preserved in Gardens, unless it be for Variety, by some Botanists. Whoever is desirous to have these Plants, may easily obtain them

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from the Places of their Growth, either the Plants, or the Seeds; but the Seeds should be sown soon after they are ripe; for they being very light, will lose their growing Quality, if they are kept long out of the Ground. These Plants seldom continue above three or four Years, when transplanted into Gardens, so that new ones should be raised from Seed to succeed them.

The fifth Sort is not so hardy as any of the former; for being a Native of warm Countries, it requires to be sheltered from the Frost in Winter. This may be propagated as the former, but should be kept in Pots, that they may be placed under a Frame in Winter, where they should have as much free Air as possible in mild Weather, but in hard Frosts, may be covered with Glasses and Mats to secure them.

The sixth Sort should be treated in the same manner as the third or fourth Sorts, and is equally hardy. These will continue much longer on a dry barren Soil, than when they are planted in a rich Garden Earth.

The seventh, eighth, ninth and thirteenth Sorts, may be propagated by Seeds, or from Slips and Cuttings: If from Seeds, they should be sown on a warm Border of dry Earth early in the Spring; and when the Plants are come up, they must be constantly kept clear from Weeds, which if suffered to grow, would soon overbear and destroy the young Plants. When the Plants are about four Inches high, some of them may be planted into Pots, that they may be removed under Shelter in the Winter; and the others may be transplanted into a warm Border, observing to shade and water them until they have taken new Root; after which time, they will require no farther Care, but to keep them clear from Weeds.

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These Plants are sometimes destroyed by severe Frost, while they are young; but afterwards they will endure the Cold of our ordinary Winters extremely well; especially if they are planted on a lean dry Soil. If you propagate these by Slips or Cuttings, they must be treated in the same manner as hath been directed for the common Sort.

The tenth and eleventh Sorts are tenderer than any of the before-mentioned. These may be propagated either by Seeds, or from Slips, as the former; but they must be kept in Pots, and require a good Green-house in Winter, where they should be placed to enjoy as much free Air as possible in mild Weather.

The twelfth Sort is an annual Plant, which rarely produces good Seeds in this Country. The surest Method to obtain good Seeds, is to sow the Seeds in Autumn, and preserve the Plants through the Winter, which will cause them to flower early the following Summer, so that they will have time to perfect their Seeds; whereas those which are raised in the Spring, will flower late in the Autumn, and the cold Weather will come on before they have time to ripen Seeds.

The fourteenth and fifteenth Sorts do rarely produce good Seeds in Europe; but they may be easily propagated by Cuttings or Slips, which should be planted in Pots filled with light fresh Earth, and plunged into a very moderate hot Bed, observing to water and shade them until they have taken Root, after which time they should be inured to bear the open Air by Degrees; then they should be taken out, and placed where they may have the Morning Sun, and sheltered from the strong Winds; in which Situation they should remain till October, when they should be removed

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moved into the Green-house, and placed where they may enjoy as much free Air as possible in mild Weather, and must be frequently refreshed with Water; but they must be secured from Frost, otherwise they will be destroyed.

ABSINTHIUM; Wormwood.

The *Species* omitted in the former Volumes, are;

1. ABSINTHIUM *Ponticum montanum*. C. B. P. Common Mountain Wormwood.

2. ABSINTHIUM *Ponticum Creticum, grati odoris*. C. B. P. Candy Pontic Wormwood, of a pleasant Smell.

3. ABSINTHIUM *Ponticum tenuifolium, caulibus purpurascens, foliis supina parte viridioribus*. C. B. P. Narrow-leav'd Pontic Wormwood, with purplish Stalks, and Leaves greener on their under Side.

4. ABSINTHIUM *Ponticum tenuifolium Austriacum*. C. B. P. Austrian Wormwood.

5. ABSINTHIUM *Ponticum repens vel supinum*. C. B. P. Creeping Pontic Wormwood.

6. ABSINTHIUM *maritimum, foliis superioribus in aliquot lacinias divisis*. C. B. P. Sea Wormwood, with the upper Leaves divided into some Jags.

7. ABSINTHIUM *Seriphium Germanicum*. C. B. P. German Sea Wormwood.

8. ABSINTHIUM *Seriphium Belgicum*. B. C. P. Belgic Sea Wormwood.

9. ABSINTHIUM *maritimum, Seriphio Belgico simile, latiore folio, odoris grati*. Pluk. Sea Wormwood, resembling the Belgic Wormwood, with a broader Leaf, and a pleasant Smell.

10. ABSINTHIUM *Seriphium Gallicum*. C. B. P. French Sea Wormwood.

11. ABSINTHIUM *Santonicum Gallicum*. C. B. P. French Wormwood.

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12. ABSINTHIUM *Seriphium montanum candidum*. C. B. P. White Mountain Wormwood.

13. ABSINTHIUM *Alpinum incanum*. C. B. P. Hoary Wormwood of the Alps.

14. ABSINTHIUM *Alpinum candidum humile*. C. B. P. Dwarf white Wormwood of the Alps.

15. ABSINTHIUM *Seriphium Hispanicum, flore oblongo*. Tourn. Spanish Wormwood, with an oblong Flower.

16. ABSINTHIUM *Halepense, grati odoris, coma delicatior*. Pluck. Wormwood of Aleppo, of a pleasant Smell, with a delicate Spike.

17. ABSINTHIUM *Africanum arborescens, folio vermiculato incano*. Oldenl. African Tree Wormwood, with a hoary vermiculated Leaf.

18. ABSINTHIUM *Africanum spicatum, foliis tenuissimis et brevissimis integris*. D. Sherard. Raii Supp. Spiked African Wormwood, with narrow short intire Leaves.

19. ABSINTHIUM *maritimum nostras*. D. Preston. Raii Supp. Scots Sea Wormwood.

20. ABSINTHIUM *orientale fruticosum incanum, amplexu folio tenuissime diviso*. Tourn. Cor. Shrubby Eastern Wormwood, with large hoary Leaves finely divided.

21. ABSINTHIUM *orientale incanum, capillaceo folio, floribus in capitulum congestis*. Tourn. Cor. Hoary Eastern Wormwood, with a capillaceous Leaf, and Flowers collected into an Head.

22. ABSINTHIUM *orientale incanum tenuifolium, floribus luteis, in capitulum congestis, et sursum spectantibus*. Tourn. Cor. Hoary narrow-leav'd Eastern Wormwood, with yellow Flowers collected into an Head, and looking upward.

23. ABSINTHIUM *orientale incanum, tanaceti folio, inodorum*. Tourn.

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Cor. Hoary Eastern Wormwood, with a tanfy Leaf, without Smell.

24. *ABSINTHIUM orientale tenuifolium, argenteum et sericeum, flore magno. Tourn. Cor.* Eastern Wormwood, with narrow silver-coloured filken Leaves.

25. *ABSINTHIUM orientale vulgari simile, sed longe minus amarum. Tourn. Cor.* Eastern Wormwood, like the common, but far less bitter.

26. *ABSINTHIUM orientale tenuifolium incanum, odore lavendulae, et insipidum. Tourn. Cor.* Hoary-narrow-leav'd Eastern Wormwood, with a lavender Smell, and insipid.

27. *ABSINTHIUM orientale tenuifolium incanum, lavendulae odore, et amarum, flore deorsum spectante. Tourn. Cor.* Hoary narrow-leav'd Eastern Wormwood, with a lavender Smell, and bitter, with the Flower hanging down.

The twentieth Sort, being a Shrub, must be propagated by Cuttings, after the manner directed for the first Sort in the former Volumes. This must be kept in Pots, that it may be removed into the Green-house in Winter, because in very severe Frost it is often destroyed, though in mild Winters it will live in the open Air, provided it is planted on a dry Soil, and in a warm Situation.

The seventeenth and eighteenth Sorts are Natives of the *Cape of Good Hope*; these may also be propagated by planting either Cuttings or Slips in any of the Summer Months, observing to water and shade them until they have taken Root; then they may be placed abroad amongst other Exotic Plants, where they may remain till *October*, when they must be removed into the Green-house, and placed with Myrtles and other hardy Plants, which require a large Share of free Air in mild Weather, and only want Protection from severe

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Frosts. They will require to be frequently watered in mild Weather, and should have a light fresh Soil. The seventeenth Sort will rise to the Height of seven or eight Feet; but the eighteenth Sort is an humble Plant. These seldom produce Seeds in *Europe*.

All the other Sorts are low Plants, which may be propagated by their Roots, many of which are apt to creep too much, so as to render it difficult to keep them within Com-pafs. These do many of them die to the Ground in Autumn, and rise again the following Spring. The best Season for transplanting them is in *March*, just before they begin to shoot; they will grow in almost any Soil or Situation, but the Eastern Kinds should be planted in a warmer Place than the other Sorts. They should be planted in Beds about four Feet broad, with Paths two Feet broad between each Bed, for the more convenient cleaning them from Weeds, and for gathering the Herb for Use. The Distance which should be allowed to the Plants, ought not to be less than eighteen Inches, or two Feet, because, as they are great Runners by their Roots, so they will soon meet and spread over the whole Beds. They may remain in these Beds three or four Years, and will require no other Culture, but to keep them clear from Weeds, and every Spring before they shoot, to cut off their dead Stalks, and spread a little fresh Earth over the Beds. At which time you should dig up the Paths between the Beds, and cut off the Roots which may have spread into them, otherwise they will soon over-run the Paths.

There are a great Variety of the Sea Wormwoods, which grow plentifully on the salt Marshes, in diverse Parts of *England*, which are indifferently

ently gathered and brought to the Markets, and sold for the Roman Wormwood, from which they differ greatly in the Colour of their Leaves, as also in their Taste and Smell; but by many Persons the Sea Wormwoods are preferred to the true Roman Wormwood, as having a stronger and more grateful Scent; though the Roman Wormwood is thought to be less nauseous to the Stomach. However, as that is now generally disused, it would be to little purpose to recommend it, since it would be difficult to alter a Practice which has been so long continued.

ABUTILON; Yellow Mallow.

The Species omitted in the former Volumes, are;

1. ABUTILON *althæoides, flore carneo, fructu globoso. Hort. Elth. p. 1.* Abutilon with the Appearance of *Althæa*, having a flesh-coloured Flower, and a globular Fruit.

2. ABUTILON *periplocæ acutioris folio, fructu stellato. Hort. Elth. p. 4.* Abutilon with a sharp-pointed periploca Leaf, and a starry Fruit.

3. ABUTILON *Americanum, folio hastato, flore amplo purpureo-cæruleo, pediculis longis infidentibus. Houst.* American Abutilon, with a spear-pointed Leaf, and large purple Flowers, with long Foot-stalks.

4. ABUTILON *Americanum, flore albido, fructu è capsulis vesicariis planis conflato, pediculo geniculato. Martyn. Cent. I. Pl. 33.* American Abutilon, with a whitish Flower, a smooth swelling Seed-vessel, and a jointed Stalk.

5. ABUTILON *Americanum, ribesii foliis, flore carneo, fructu pentagono aspero. Houst.* American Abutilon, with curran Leaves, a flesh-coloured Flower, and a rough five-corner'd Fruit.

6. ABUTILON *Americanum frutescens, folio amplo cordato, subtus*

lanuginoso, floribus amplis luteis. Houst. Shrubby American Abutilon, with a large heart-shaped Leaf, woolly on the under Side, and large yellow Flowers.

7. ABUTILON *fruticosum aquaticum, folio cordato scabro, flore pallide luteo. Houst.* Shrubby aquatic Abutilon, with a rough heart-shaped Leaf, and a pale yellow Flower.

8. ABUTILON *Americanum, populi folio, leviter serrato. Houst.* American Abutilon, with a poplar Leaf, slightly sawed on the Edges.

9. ABUTILON *Americanum fruticosum, foliis cordatis, floribus parvis purpurascens. Houst.* Shrubby American Abutilon, with heart-shaped Leaves, and small purplish Flowers.

10. ABUTILON *Americanum viscosum, althææ folio mucronato, flore parvo luteo. Houst.* American viscous Abutilon, with pointed marsh-mallow Leaves, and a small yellow Flower.

11. ABUTILON *fruticosum, foliis subrotundis serratis, floribus albis pentapetalis, ad alas foliorum conglomeratis. Sloan. Cat.* Shrubby American Abutilon, with roundish serrated Leaves, and white Flowers growing in Clusters from the Wings of the Leaves.

These Plants are most of them annual, and require to be raised from Seeds every Spring; the first and third Sorts, which are mentioned in the first Volume, may be sown in the full Ground in March, in a light Soil, and an open Exposure; where they will come up and thrive very well, and perfect their Seeds in September. The first Sort grows to the Height of three or four Feet, but the third Sort spreads on the Ground, and should be allowed room. These Plants do not bear transplanting well, but should be sown where they are to

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remain ; and where they are too close, they should be thinn'd to give them room to grow : These require no other Culture but to keep them clear from Weeds, which would over-run and destroy them.

The second Sort is also annual, but coming from hot Countries, requires to be raised on a Hot-bed in the *Spring*, and must be afterwards transplanted into Pots, and plunged on a fresh Hot-bed, in order to bring it forward, otherwise it will not perfect Seeds in this Country.

The first Sort here enumerated, grows woody, and will rise to the Height of eight or ten Feet ; the Leaves are very hoary, and the whole Shrub has the Appearance of the *Althæa frutex*. This Plant may be propagated by sowing of the Seeds in the *Spring*, on a moderate Hot-bed ; and when the Plants are come up two or three Inches high, they should be transplanted each into a small Pot filled with light Earth, and plunged into the Hot-bed, observing to water and shade them until they have taken new Root ; and as the Weather becomes warm, they should be inured to bear the open Air. In *Summer* these Plants may be exposed to the open Air, in a warm Situation ; but in *Winter* they must be placed in a warm Green-house, and will require to be frequently watered ; with this Management the Plants will flower, and produce ripe Seeds every Year.

The sixth, seventh, eighth and ninth Sorts, were discovered by my late learned Friend Dr. *William Houstoun*, in the *Spanish West-Indies*, from whence he sent the Seeds, and fair Samples of all the Kinds to *England*. These may all be propagated by Seeds, which must be sown on a Hot-bed early in the *Spring* ; and when the Plants are come up about two Inches high, they should be

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transplanted into a fresh Hot-bed, in order to bring them forward, observing to water and shade them until they have taken Root, after which time they should be constantly supplied with Water three or four times a Week ; and in hot Weather the Glasses should be raised to admit fresh Air to the Plants, which will greatly strengthen them. When the Plants are grown pretty large, they should be taken up carefully, to preserve the Earth to their Roots, and each planted into a separate Pot, filled with light rich Earth ; and then the Pots should be plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken new Root ; after which time they should be managed as before. When the Plants are grown too tall to remain under the Glasses of the Hot-bed, they should be removed into the Bark-Stove, where they must remain all the following *Winter* ; but they need not be kept in a very great Heat, a moderate Warmth being much more agreeable to them. The second Year most of these Plants will flower, provided they are continued in the Stove ; for if they are exposed to the open Air in the *Summer* Season, they will not make any Progress, and in a cold *Summer* will be destroyed : Therefore it is by far the better Method to keep them constantly in the Bark-Stove, and to let them have a large Share of free Air in warm Weather. With this Management most of the Sorts will produce Flowers and Seeds in *England*, and may be continued for several Years.

ACACIA ; The *Egyptian Thorn*.

The Sorts omitted in the former Volumes, are ;

1. ACACIA *Americana frutescens, non aculeata, flore purpureo.* Plum. Shrubby American Acacia, without

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without Thorns, and a purple Flower.

2. *ACACIA Americana, flore luteo globofo, spinis exiguis, foliorumque pinnis tenuiffimis pubefcentibus.* Houft. American Acacia, with a round yellow Flower, small Thorns with very narrow Leaves, which are hairy.

3. *ACACIA spinofa tenuifolia, floribus fpicatis luteis, filiquis longiffimis compreffis flavis.* Houft. Narrow-leav'd prickly Acacia, with fpiked yellow Flowers, and long compreffed yellow Pods.

4. *ACACIA spinofa tenuifolia, spinis fingulis cornu bovinum per longitudinem fiffum referentibus.* Houft. Prickly narrow-leav'd Acacia, with fingle Thorns, refembling an Ox's Horn, fplit longitudinally.

5. *ACACIA Americana, faginis foliis, tetraphylla, fofculis ftaminofis in fpicam difpofitis.* Pluk. Amalth. Broad four-leav'd Acacia, with ftamineous Flowers difpofed in a Spike.

6. *ACACIA humilis latifolia non spinofa, ftaminibus florum longiffimis rubentibus.* Houft. Dwarf broad-leav'd Acacia without Thorns, having long red ftamineous Flowers.

7. *ACACIA Americana non spinofa latifolia, filiquis marginatis, et ad fingula grana tumidis.* Houft. Broad-leav'd American Acacia, with bordered Pods, which fwel where each Seed is lodged.

8. *ACACIA spinofa tenuifolia, filiquis latis, spinis minimis recurvis folitariis.* Houft. Narrow-leav'd thorny Acacia with broad Pods, and fmall crooked Spines, which grow fingly.

9. *ACACIA non spinofa, filiquis latis compreffis, pinnis foliorum latifculis glabris.* Acacia without Thorns, with broad compreffed Pods, and broad fmoother Leaves.

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10. *ACACIA non spinofa tetraphylla latifolia, ftaminibus florum longiffimis rubentibus.* Four-leav'd Acacia without Thorns, with broad Leaves, and long ftamineous red Flowers.

11. *ACACIA non spinofa tenuifolia, filiquis varie intortis.* Houft. Narrow-leav'd Acacia without Thorns, and variously contorted Pods.

12. *ACACIA Americana tetraphylla et spinofa, floribus globofis, ftaminibus florum longis rubentibus.* Four-leav'd prickly Acacia, with round Flowers having long red Stamina.

These twelve Sorts of Acacia were collected by the late Dr. Houftoun, in Jamaica, at Carthagena, and La Vera Cruz, who fent the Seeds and Specimens to England, where many of the Kinds are now growing. These Plants are propagated by Secus, which muft be procured from the Countries where they naturally grow; for few of them produce Seeds in Europe. In the bringing over of the Seeds, great Care fhould be taken to preferve them from Infefts, which generally eat into the Pods, and alfo confume the Subftance of the Seeds, leaving only the outer Covering: These Infefts are very fmall, fo as often to efcape the Sight; but if you find any Pods to have Holes in them, you may then conclude there are Infefts amongst them, fo that the fooner you take out the Seeds, the more furely you will preferve them; but you fhould put them into frefh Papers, and throw away thofe in which the Pods had been, left fome of the Infefts fhould be left therein.

The Seeds of all these Sort fhould be fown on a Hot-bed early in the Spring; and when the Plants are come up, they fhould be tranfplanted into fmall Pots filled with light frefh Earth, and plunged into a Hot-bed of

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of Tanners Bark, observing to water and shade them until they have taken new Root; after which time, they must be treated in the manner directed in the former Volumes, for the *Egyptian* Acacia. These Plants must be constantly kept in the Bark-stove, otherwise they will make very little Progress, especially while they are young. In the *Summer* Season these Plants should have a large Share of fresh Air, and must be frequently refreshed with Water; and in *Winter*, the Stove in which they are placed, should be kept to a temperate Degree of Heat; with this Management these Plants will thrive extremely well, and most of them will produce Flowers in two or three Years from the Time of their being sown.

ACANTHUS; Brank-Urfine or Bears-Breech.

1. ACANTHUS *orientalis humillimus, foliis pinnatis aculeatis.* Tourn. Cor. Dwarf *Eastern* Bears-Breech, with prickly winged Leaves.

This Sort of Bears-Breech was discovered by Dr. *Tournefort* in the *Levant*, who sent it to the *Royal Garden* at *Paris*. This may be propagated by Seeds, which should be sown on a Bed of light fresh Earth in the *Spring* of the Year; and when the Plants are come up, they should be carefully weeded, and in very dry Weather they should be watered, which will greatly promote the Growth of the Plants. In this Bed they may remain until the following *Spring*, when they should be carefully taken up and transplanted, where they are designed to remain, which should be in a warm Situation, and on a dry fresh Soil. These Plants should be allowed a great Share of Room; for they are very apt to spread far, and their Leaves grow to a great Size, when the Plants are

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strong, so that if any other Plants stand near them, they will be in Danger of suffering, by being over-spread.

It has been much disputed by the Learned, whether the common Sort of *Acanthus* is the Plant which *Virgil* mentioned under that Name: but this is not easy to be reconciled; for, according to *Pliny*, the *Acanthus* should be a tonfile Plant, and proper to cut into Figures, and *Virgil* makes it an *Ever-green*, a *Berry-bearing* Plant, and a *Climber*: neither of which Properties belong to our *Acanthus*; but the Description which *Di-scorides* has given of the *Acanthus*, agrees very well with our common *Bears-Breech*; and from the Remains of some antient Buildings at *Rome*, which have the Figure of the *Acanthus* cut on the Capitals of the Pillars, which are yet intire, there is a good Resemblance to the Leaves of the common *Acanthus*.

ACER; The Maple-tree.

1. ACER *trifolia.* C. B. P. Maple-tree, with a trifoliated Leaf.

This Sort of Maple grows plentifully about *Montpelier*, and other Places in the South of *France*, where it rises to the Height of our common Maple; but in *England* it is very rare at present, and only to be found in some curious Botanic Gardens. This Tree may be propagated from Seeds, in the same manner as our common Maple; but the Seeds should be sown in Autumn, soon after they are ripe, otherwise they seldom grow, which is the Reason why this Tree is so scarce in *England*; for there are no Trees which have yet produced Seeds here, and the Seeds will not retain their growing Quality so as to bear transporting hither, unless they are put into Earth or Sand, by which Method they might be brought over very safe.

ACETOSA;

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ACETOSA ; Sorrel.

1. ACETOSA *foliis crispis*. C. B. P. Sorrel with curled Leaves.

2. ACETOSA *montana maxima*. C. B. P. Greatest Mountain Sorrel.

3. ACETOSA *Pyrenaica, angustissimo & longissimo folio*. Schol. Bot. Pyrenean Sorrel, with very long narrow Leaves.

4. ACETOSA *montana, lato ariv rotundo folio*. Bocc. Mus. Mountain Sorrel, with a broad arum Leaf.

5. ACETOSA *montana pumila, fagopyri folio*. Bocc. Mus. Dwarf Mountain Sorrel, with a buck-wheat Leaf.

6. ACETOSA *tuberosa radice*. C. B. P. Sorrel with a tuberose Root.

7. ACETOSA *calthæ folio, peregrina*. C. B. P. Foreign Sorrel, with a marigold Leaf.

8. ACETOSA *lucida, folio atriplicis*. H. R. Par. Shining Sorrel, with orach Leaves.

9. ACETOSA *major Italica, semine rotundiore et glomerato*. H. R. Par. Greater Italian Sorrel, with a round glomerated Seed.

10. ACETOSA *arvensis lanceolata*. C. B. P. 124. Sheeps Sorrel.

11. ACETOSA *lanceolata angustifolia elatior*. Mor. Hist. Taller narrow-leav'd spear-pointed Sorrel.

12. ACETOSA *ocymi folio, Neapolitana*. C. B. P. Neapolitan Sorrel, with a basil Leaf.

13. ACETOSA *Americana, foliis longissimis pediculis donatis*. C. B. P. American Sorrel, with Leaves growing on long Pedicles.

14. ACETOSA *rotundifolia repens Eboracensis, folio in medio deliquium patiente*. Mor. Hist. Creeping round-leav'd Sorrel of the North.

15. ACETOSA *arborescens, subrotundo folio, ex Insulis Fortunatis*. Pluk. Almag. Shrubby Sorrel, with a round Leaf, from the Fortunate Islands.

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The first Sort of Sorrel is a Variety from the common Sort, which often arises from the same Seeds, as doth also that with white Flowers ; so that they do not deserve the Notice which the Writers on Botany have taken of them.

The second, third, fourth, fifth, sixth, seventh, eighth and ninth Sorts, are all of them very hardy Plants, and may be propagated by Seeds, in the same manner as the common Sort, with this Difference only, of allowing the large Sorts more room ; for the second and third Sorts grow very large, and therefore require to be left a Foot asunder, or more. The Roots abide several Years, and may be parted at *Michaelmas* to propagate their Kinds ; though they all succeed much better by Seeds, which they usually perfect in this Country.

The tenth and eleventh Sorts grow wild on dry Banks, and on the Sides of Gravel-pits, in diverse Parts of *England*, and are rarely admitted to have Place in a Garden. These multiply exceedingly by their Roots, which creep very far under Ground, so that they should not be suffered to grow near other Plants. The tenth Sort is placed in the Catalogue of Simples, in the College Dispensatory ; but, I believe, is seldom ordered in Medicine.

The twelfth and thirteenth Sorts are annual, and are rarely cultivated, except in Botanic Gardens, for the sake of Variety ; these may be propagated by sowing of their Seed on a Bed of light Earth in *March* ; and when the Plants are come up, they should be constantly kept clean from Weeds, and where they are too close to each other, they should be thinned ; but they do not bear transplanting well ; therefore they should always be sown where they are designed to remain.

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remain. In *June* these Plants will flower, and their Seeds will ripen in *August*.

The fourteenth Sort grows wild in *Yorkshire*, and several other Northern Counties of *England* and *Scotland*, from whence it is often procured for the sake of Variety; but it doth not thrive in the Southern Parts well: it should have a shady Situation, and a moist strong Soil.

The fifteenth Sort will grow to the Height of twelve or fourteen Feet, and become woody, so as to have the Appearance of a Tree. This is preserved in Green-houses in Winter, by Persons who are curious in collecting Exotic Plants. It may be easily propagated by planting Cuttings in a Bed of light Earth, during any of the Summer Months, observing to water and shade them until they have taken Root, when they should be taken up and planted in Pots filled with fresh Earth, and placed in a shady Situation, until they have taken new Root; after which time, they may be placed amongst Myrtles, Geraniums, and other hardy Exotic Plants, till *October*, when they should be removed into the Green-house, where they should be placed to have as much free Air as possible in mild Weather; for otherwise they will become very weak and unsightly.

ACONITUM; Wolfsbane.

The *Species* omitted in the former Volumes, are;

1. ACONITUM *lycoctonum*, *humili caule, ac minoribus foliis*. *Dod.* Dwarf Wolfsbane, with lesser Leaves.

2. ACONITUM *Pyrenaicum*, *ampleiore folio tenuius laciniato*. *Tourn.* Wolfsbane of the *Pyrenean* Mountains, with larger Leaves, cut into narrow Segments.

3. ACONITUM *cæruleum*, *napelli flore*. *C. B. P.* 283. Autumnal Wolfsbane, with a blue Flower.

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4. ACONITUM *coma inflexa, foliis angustioribus*. *C. B. P.* 283. Narrow-leav'd Wolfsbane, with inflexed Heads.

5. ACONITUM *coma inflexa, foliis latioribus*. *Tourn.* Broad-leav'd Wolfsbane, with inflexed Heads.

6. ACONITUM *inflexa coma, maximum*. *C. B. P.* Wolfsbane, with the largest inflexed Heads.

7. ACONITUM *seu napellus 1. flore roseo*. *C. B. P.* Wolfsbane with a rose-coloured Flower.

8. ACONITUM *seu napellus 1. flore albo*. *C. B. P.* Wolfsbane with a white Flower.

9. ACONITUM *seu napellus 1. flore ex cæruleo et albo variegato*. *C. B. P.* Wolfsbane with a Flower variegated from Blue to White.

10. ACONITUM *violaceum, seu napellus 2.* *C. B. P.* Wolfsbane with a violet-coloured Flower.

11. ACONITUM *purpureum seu napellus 3.* *C. B. P.* Wolfsbane with a purple Flower.

12. ACONITUM *cæruleum minus, five napellus minor*. *C. B. P.* Lesser blue Aconite or Wolfsbane.

13. ACONITUM *cæruleo-purpureum, flore maximo, five napellus 4.* *C. B. P.* Wolfsbane with very large purple-blue Flower.

14. ACONITUM *lycoctonum orientale, flore magno albo*. *T. Cor.* Eastern Wolfsbane, with a large white Flower.

Most of these Kinds of Wolfsbane are Natives of the *Alps* or *Pyrenean* Mountains, where (it is reported) the Huntsmen who hunt the Wolves dip their Arrows into the Juice of these Plants, which renders the Wounds given with these Weapons, mortal. They are most of them too noxious to have a Place in Gardens which are much frequented by Children; for we have had many Instances of Persons who have lost their Lives, and

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and of others who have with great Difficulty been recovered, after having eaten of these Plants. A late Instance of this hath been published in the *Philosophical Transactions*, where there is an Account of an unskilful Person gathering some Roots of Wolfsbane (early in the Spring, when the Plant was newly risen above Ground) instead of *Celery*: and putting them into a Sallet, two Persons were poisoned therewith; one of whom was with great Difficulty saved.

All these Kinds of Wolfsbane are great Ornaments to a large Garden, and many of them will thrive in the greatest Shade, and on the poorest Soil, where few other Plants will grow, and multiply greatly by the Root, so that a few Plants of each Sort will, in a few Years, produce a great Stock. The best Time to transplant these Roots, is at *Michaelmas*, when the Roots are in an unactive State; for soon after that Time, they begin to put out new Roots, and early in the Spring the Plants will appear above Ground; when it will be too late to transplant them; for although they will often grow if removed at that Season, yet they rarely flower the same Year, and will make very little Increase at the Root.

Some of the Sorts with blue Flowers will grow to the Height of three or four Feet; but those with yellow Flowers usually grow much higher, and the Eastern Kind with white Flowers, I have seen upward of six Feet high; but this Sort is very rare in *Europe*, and only to be found in some curious Gardens at present.

ADIANTHUM; Maidenhair.

The Species are;

1. ADIANTHUM *foliis coriandri*. C. B. P. True Maidenhair, with Leaves like Coriander.

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2. ADIANTHUM *Scoticum majus, coriandri folio*. Tourn. Greater Scots Maidenhair, with a Coriander Leaf.

3. ADIANTHUM *Scoticum minus, folio obtuso, altius inciso*. Tourn. Lesser Scots Maidenhair, with an obtuse Leaf, deeply cut in.

4. ADIANTHUM *Americanum Cornuti*. American Maidenhair of Cornutus.

The first Sort is a Native in the South Parts of *France*, and in the *Mediterranean*, where it grows on Rocks, and old Ruins, from whence it is brought into *England* for medicinal Use; though the smaller Leaves of Fern are sometimes imposed on ignorant Persons, by those who supply the Markets with Herbs; but as the true Sort is not to be obtained fresh in *England*; so the surer way is to get it from some knowing Druggist, who imports it from Abroad.

The second and third Sorts have been found growing on the Rocks, in the North of *Scotland*; but as they are not commonly found, so they have not been introduced into the *London* Shops.

The fourth Sort is a Native of *America*, from whence it was originally brought into *Europe*, and is preserved by curious Persons in their Gardens. This has been formerly preserved in the Stoves in *England*, as a very tender Plant, but it is found to be very hardy; and in *France* it is now become so common, as to be used instead of the common Sort, in the Shops at *Paris*.

There are many other Sorts of this Plant in the *East* and *West-Indies*, from whence we have received dried Samples of near thirty Sorts; but as they are Plants which are not cultivated in the *European* Gardens, I shall not enumerate them here.

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ADIANTHUM ALBUM; *vide* Ruta Muraria.

ADIANTHUM NIGRUM; *vide* Filicula.

AGERATUM. The Plants which were mentioned in the first Volume, are by Dr. Tournefort referred to *Ptarmica*, of which they are Species according to his Method; but as the first Species stands in the Dispensatory under the Title of *Ageratum*, I thought proper to continue it under that Name, and have here subjoined some Plants which agree with Dr. Tournefort's Character of *Ageratum*.

The Characters are;

It hath a personated Flower, consisting of one Leaf, the under Part of which is tubulous; but the upper Part is divided into two Lips, the upper one being divided into two, and the under one into three Parts: the Pistil which arises from the Flower-cup, afterwards becomes an oblong membranaceous Fruit, divided into two Cells, in which are contained many small Seeds.

The Species are;

1. **AGERATUM serratum** *Alpinum glabrum, flore purpurascens.* Tourn. Smooth *Ageratum* of the *Alps*, with a purplish Flower.

2. **AGERATUM Americanum erectum** *spicatum, flore purpureo.* Houst. American *Ageratum*, with purple Flowers growing in a Spike.

3. **AGERATUM Americanum procumbens,** *gnaphalii facie, floribus ad foliorum nodos.* Houst. Creeping American *Ageratum*, having the Face of Cudweed, and the Flowers coming out at the setting on of the Footstalks.

4. **AGERATUM Americanum frutescens,** *chamædryos folio, floribus ex foliorum alis.* Houst. Shrubby American *Ageratum*, with a germander Leaf, and the Flowers grow-

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ing from the setting on of the Leaves.

The first Sort, being a Native of the *Alps*, is very hardy in respect to cold, but must have a strong Soil, and not too much exposed to the Sun. This is propagated by parting of the Roots; the best Time for doing of this is in *September*. This Plant grows very close to the Ground, and has been used in some Parts of *England* to make Edgings for Borders; but near *London*, where the Soil is hot, and has been dunged, it is very difficult to maintain this Plant. It flowers in *June*, but rarely produces ripe Seeds in *England*.

The other three Sorts were discovered in *America*, by the late ingenious Dr. William Houstoun, who sent the Seeds of these Plants into *Europe*. The Seeds of these three Sorts must be sown on a Hot-bed in the Spring, and when the Plants are fit to transplant, they should be placed each into a small Pot filled with light Earth, and removed into a moderate Hot-bed, observing to water and shade them until they have taken Root; after which they must have Air and Water in proportion to the Season, and the Warmth of the Bed in which they are placed. In Autumn these Plants will flower, and if they are placed in a Stove, will perfect their Seeds in Winter. They may also be continued through the Winter in a Stove, and will flower early the following Summer, so that good Seeds may be obtained by this Method; but they rarely continue longer than two Summers, wherefore they must be constantly raised from Seeds every Year.

AGRIMONIA; Agrimony.

The Species omitted in the former Volumes, are:

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1. *AGRIMONIA minor, flore albo.*
Hort. Cath. Lesser Agrimony, with
a white Flower.

2. *AGRIMONIA orientalis humilis,*
radice crassissima repente, fructu in
spicam brevem et densam congestis.
T. Cor. Dwarf Eastern Agrimony,
with thick creeping Roots, and the
Seeds growing in short thick Spikes.

These two Sorts of Agrimony are
preserved in the Gardens of such
Persons who are curious in Botanical
Inquiries; but as they are not used
in Medicine, they are seldom culti-
vated in other Gardens. They are
both very hardy Plants, and may be
propagated by sowing of their Seeds
on a Bed of light Earth, in the Spring;
and when the Plants are come up,
they will require no farther Care
than only to keep 'em clear from
Weeds, until they are large enough
to transplant; when they may be
planted in an open Bed of light
Earth, where they will thrive, and
endure the severest Cold of our
Climate, as well as the common
Sort.

AGRIMONOIDES ; Bastard
Agrimony.

The Characters are ;

It hath a rosaceous Flower, con-
sisting of several Petals, which are
placed in a circular Order, issuing
out of the Divisions of the Flower-
cup; but the Flower and the Flower-
cup are received into another funnel-
shaped Empalement, which is fringed.
The Flower-cup afterwards becomes a
sharp oval Fruit, which is infolded
in the outer Empalement, and con-
tains, for the most part, a single
Seed.

There is but one Species of this
Plant at present known, which is ;

AGRIMONOIDES. Col. part 1. 145.

This is a perennial Plant, which
in its outward Appearance greatly re-
sembles Agrimony, but differs there-

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from in its Flower; for which Rea-
son Dr. Tournefort has separated it
from the Agrimonies. It may be
propagated by Seeds, which should
be sown in the Autumn soon after
they are ripe; for if they are
kept out of the Ground till
Spring, they are subject to miscarry,
or otherwise will remain in the
Ground till the following Spring;
whereas those which are sown in
Autumn seldom fail to come up
the next Spring. When the Plants
appear, they will require no other
Culture, but to keep them clear from
Weeds until the following Autumn,
when they should be taken up and
transplanted where they are to re-
main. These Plants will grow in
almost any Soil or Situation, provided
they are not placed under the Drip of
Trees.

The second Year they will pro-
duce Flowers, and the Roots will
abide several Years, and may be
parted in Autumn, if you are willing
to propagate them that way.

AHOUI.

The Characters are ;

It hath a funnel-shaped Flower,
consisting of one Leaf, and is divided
into several Parts at the Top; from
whose Cup arises the Pointal, which
is fixed like a Nail to the inner Part
of the Flower, which afterwards
becomes a fleshy Fruit, almost of a
Pear-shape, in which is inclosed a
three-corner'd Nut.

The Species are ;

1. **AHOUI.** Thev. Franc. An-
tarct. 66.

2. **AHOUI** *nerii folio, flore luteo.*
Plum. Ahouai, with an oleander
Leaf, and a yellow Flower.

These two Plants grow in great
Plenty on the Continent in the
Southern Parts of America, but are
less common in the Islands of Ame-
rica. The first of them grows to the
Height

Height of our common Cherry-trees ; the Leaves are three or four Inches long, and almost two Inches broad. The whole Tree is full of a milky Juice, which flows out on breaking or wounding any Part of it. The Wood of this Tree stinks most abominably, and the Kernel of the Nut is a most deadly Poison, so that the *Indians* always caution their Children against eating of it ; for they know of no Antidote to expel this Poison, nor will they use the Wood of this Tree for Fuel ; but they take the Kernel of the Shell, into which they put small Stones, and then bore a Hole thro' each Shell, and string them ; these they tie about their Legs, to dance with, as is the Custom of our Morris-dancers with Bells.

The second Sort is of much lower Growth than the first, and seldom rises above ten or twelve Feet high. The Fruit of this Tree is of a beautiful red Colour, when ripe ; but the whole Plant abounds with a milky Juice as the former, and I believe is equally poisonous. I received the Seeds of this Plant from *Panama*, which were collected by Mr. *Robert Millar* Surgeon, in the Year 1735 ; they came up in a Hot-bed very well, and some of the Plants produced Flowers the same Year.

These Plants may be propagated from their Nuts, which should be put into small Pots fill'd with light Earth, and plunged into a Hot-bed of Tanners-bark, observing to water them frequently to promote their Vegetation. When the Plants are come up about two Inches high, they should be transplanted each into a separate Pot, filled with fresh light Earth, and plunged again into a Hot-bed of Tanners-bark, observing to shade the Glasses in the Heat of the Day, until the Plants have taken new

Root ; and they must be frequently refreshed with Water. As the Summer advances, so these Plants should have Air admitted to them, in proportion to the Warmth of the Season ; and when they have filled these small Pots with their Roots, they should be turned out, and transplanted into other Pots of a larger Size, which must also be filled with fresh light Earth, and then should be plunged into the Hot-bed again, observing to water them frequently, as also to admit Air under the Glasses every Day, in proportion to the Warmth of the Season. When the Plants are grown about a Foot high, they should have a larger Share of Air, in order to harden them before the Winter ; but they should not be wholly exposed to the open Air the first Year, because it will stunt their Growth. In the Winter these Plants should be placed in a warm Stove, and during that Season they should be frequently refreshed with Water ; but it must not be given to them in great Quantities in cold Weather, lest it should rot their Roots. In the following Spring these Plants should be shifted again into other Pots, at which time you should take away as much as you conveniently can of the old Earth from their Roots, and afterwards cut off the decayed Fibres ; then put them into Pots filled with light rich Earth, and if you have Conveniency to plunge them into a moderate Hot-bed of Tanners-bark, it will greatly promote their taking new Root. In *June* following these Plants should be inured to bear the open Air by Degrees, into which they should be removed toward the latter End of the same Month ; but they should be placed in a warm Situation, where they may be sheltered from strong Winds. In such a Situation they will bear the open Air

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Air of our Climate very well until *September*, when they should be again removed into the Stove, and must be managed during the Winter Season, as was before directed. These Plants produce their Flowers plentifully in *August*, but they have not as yet borne any Fruit in this Country. They retain their Leaves all the Year, which being thick, strong, and of a shining green Colour, make a pretty Variety amongst other tender Exotic Plants in the Winter Season, for which they are chiefly esteemed.

ALCEA ; Vervain-mallow.

The *Species* omitted in the former Volumes, are ;

1. ALCEA *vulgaris major, flore ex rubro-roseo*. C. B. P. 316. Greater Vervain-mallow, with a rose-colour'd Flower.

2. ALCEA *vulgaris major, flore candidiore*. C. B. P. 316. Greater Vervain-mallow, with a white Flower.

3. ALCEA *cannabina*. C. B. P. Hemp-leaved Vervain-mallow.

The first and second Sorts are common in *Germany*, *France*, and several Parts of *Europe* ; the first Sort is ordered for medicinal Use ; but as that is not so common in *England*, the narrow-leav'd, curled Sort is substituted in his stead, and I believe either of the Sorts may be used indifferently. These Sorts are biennial Plants, and seldom continue after they have perfected Seeds ; they may be propagated by sowing their Seeds in the Spring, and when the Plants are come up, they should be thinned, leaving them about a Foot asunder, where they may remain till they flower and seed ; for they do not bear transplanting well, their Roots running for the most part down-right, to a considerable Depth. These Plants should have a poor Soil, for in a rich Earth they grow too

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rank, and are subject to rot in Winter.

The third Sort is an abiding Plant, and is apt to creep at the Root. This may be propagated by Seeds as the former, and should have a lean Soil.

ALCHIMILLA ; Ladies Mantle.

The *Species* omitted in the former Volumes, are ;

1. ALCHIMILLA *minor*. Mor. Hort. Reg. Bles. The lesser Ladies Mantle.

2. ALCHIMILLA *Alpina pentaphylla minima, lobis fimbriatis*. Bocc. Mus. Par. 2. 18. Least five-leav'd Ladies Mantle of the *Alps*, with fringed Leaves.

3. ALCHIMILLA *montana minima*. Col. par. 1. 146. Least Mountain Ladies Mantle, commonly called, Parsley Breakstone.

4. ALCHIMILLA *supina, gramineo folio, minore flore*. Tourn. Low Grass-leav'd Ladies Mantle, with a smaller Flower.

5. ALCHIMILLA *erecta, gramineo folio, minore flore*. Tourn. Upright Grass-leav'd Ladies Mantle, with a smaller Flower.

6. ALCHIMILLA *gramineo folio, majori flore*. Tourn. Grass-leav'd Ladies Mantle, with a larger Flower.

7. ALCHIMILLA *linariae folio, calyce florum albo*. Tourn. Ladies Mantle, with a toadflax Leaf, and a white Flower-cup.

8. ALCHIMILLA *linariae folio, calyce florum sublateo*. Tourn. Ladies Mantle, with a toadflax Leaf, and a yellowish Flower-cup.

9. ALCHIMILLA *orientalis, linariae folio brevissimo, calyce florum albo*. Tourn. Cor. Eastern Ladies Mantle, with a very short toadflax Leaf, and a white Flower-cup.

10. ALCHIMILLA *Græca, kali folio, calyce florum albido*. Tourn. Cor. Greek Ladies Mantle, with a glasswort

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glasswort Leaf, and a whitish Flower-cup.

These Plants are many of them preserved in Botanic Gardens for Variety ; they all grow wild in *England*, *Holland*, and *Flanders*, except the two last-mentioned, which *Monf. Tournefort* found in his Voyage to the *Levant*. They are most of them annual Plants, and if they are permitted to shed their Seeds in the Autumn, they will come up, and require no other Culture, but to keep them clear from Weeds. The third Sort is an annual Plant, which grows in great Plenty on Heaths, and other uncultivated Places in divers Parts of *England* ; and if it is transplanted into a Garden, and permitted to shed its Seeds, will maintain itself without any farther Care. This Plant is often brought to the Markets in *London*, and sold for *Rupture-wort*, which is a very different Plant from this, but doth not grow wild near *London*.

ALKEKENG I ; Winter Cherry.

The Species are ;

1. ALKEKENG I *officinarum*. *Tourn.* Common Winter Cherry of the Shops.

2. ALKEKENG I *officinarum*, *foliis variegatis*. *Tourn.* Common Winter Cherry, with variegated Leaves.

3. ALKEKENG I *fructu parvo verticillato*. *Tourn.* Winter Cherry with small Fruit growing in Whorles round the Stalks.

4. ALKEKENG I *Virginianum*, *fructu luteo*. *Tourn.* *Virginian* Winter Cherry, with yellow Fruit.

5. ALKEKENG I *Indicum majus*. *Tourn.* Greater *Indian* Winter Cherry.

6. ALKEKENG I *Americanum annum ramosissimum*, *fructu ex luteo virefcenti*. *Houft.* *American* annual branching Winter Cherry, with a yellowish green Fruit.

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7. ALKEKENG I *Americanum annum maximum viscosum*. *Houft.* The largest annual *American* Winter Cherry.

8. ALKEKENG I *Barbadense patulum*, *parvo flore, fructu amplo, mucrone productioni*. *Act. Phil. N. 399.* Dwarf *Barbadoes* Winter Cherry, with a small Flower, and an ample pointed Fruit.

9. ALKEKENG I *Curassavicum, foliis origani incanis, flore viete sulphureo, fundo purpureo*. *Boerb. Ind. alt. 11. 66.* Hoary Winter Cherry from *Curasso*, with origany Leaves, and sulphur-coloured Flowers, with purple Bottoms.

10. ALKEKENG I *Americanum frutescens, fructu globofo rubro, vesica atro-purpurea*. *Houft.* Shrubby *American* Winter Cherry, with a round red Fruit, having a dark purple Bladder.

The first Sort is very common in the *English* Gardens, where it is preserved for the Appearance of its Fruit, which is ripe in *October*, and continues often till the middle of *December* ; it is about the Size of a common Cherry, and of a fine red Colour. This Fruit is inclosed in a Bladder, which when ripe, bursts, and exposes the Fruit to Sight. It may be propagated by sowing of the Seeds in the Spring, or by the Roots, which creep very much ; so that if they are not confined, they will soon overspread a large Tract of Ground ; therefore to have them more beautiful, they should be confined in Pots, which should be placed in the Shade in Summer, and if constantly watered in dry Weather, will produce great Numbers of Fruit. This Sort is ordered for medicinal Use, by the College of Physicians. The second Sort is a Variety of the first, differing only in having variegated Leaves. This may be managed as the former.

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The third, ninth and tenth Sorts, are abiding Plants, which require to be shelter'd from the Cold in Winter. The third Sort grows to a Shrub of about three Feet high, and produces great Numbers of Fruit annually. This may be propagated by sowing of the Seeds on a moderate Hot-bed in the Spring; and when the Plants are come up two Inches high, they should be transplanted on another Hot-bed, observing to water and shade 'em until they have taken new Root; after which time they must have a large Share of Air, otherwise they will draw up very weak. In June these Plants should be potted, and placed in a shady Situation until they have taken Root; after which they may be exposed to the open Air in Summer, but in Winter they must be placed in a warm Green-house.

The ninth Sort creeps very much at the Root, and is easily propagated by parting the Roots in the Spring. This must be housed in Winter as the former, but may be exposed in Summer. It produces Flowers annually, but has not produced any Fruit in England.

The tenth Sort grows to the Height of ten or twelve Feet. This is propagated by sowing of the Seeds on a Hot-bed in the Spring, and must be afterwards potted, as hath been directed for the third Sort; but this must be placed in a Stove in Winter, it being the tenderest of all the Sorts here mentioned.

The fourth, fifth, sixth, seventh and eighth Sorts, are annual Plants, and require to be raised on a Hot-bed in the Spring; and when the Plants are come up two Inches high, they should be transplanted to another moderate Hot-bed, observing to water and shade them until they have taken Root; after which time they must have a large Share of fresh Air, and

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in June they may be taken up with a Ball of Earth to their Roots, and transplanted into Pots or Borders of light Earth, where they may remain to perfect their Fruit.

ALLIUM; Garlick.

The Species omitted in the former Volumes, are;

1. ALLIUM *sylvestre ampicarpon*, foliis porraceis, floribus et nucleis purpureis. Raii Syn. Broad-leav'd Mountain Garlick, with purple Flowers.

2. ALLIUM *sylvestre bicornne*, flore ex herbaceo albicante, cum triplici in singulis petalis stria atro-purpurea. Raii Syn. Ed. 3. 370. Wild Garlick, with an herbaceous strip'd Flower.

3. ALLIUM *Holmense*, sphaerico capite. Raii Syn. Ed. 3. 370. Great round-headed Garlick of the *Holms-Island*.

4. ALLIUM *bulbiferum Virginianum*. Boerb. Ind. alt. Virginian Garlick.

The first, second and third Sorts, grow wild in divers Parts of England, but are by the Curious in Botany preserved in their Gardens for Variety. They are extreme hardy, and will thrive in almost any Soil or Situation, requiring no other Culture, but to keep them clear from Weeds. The best Season to transplant them is in August, soon after their Leaves decay; for if they are suffered to remain long after, they will shoot out new Roots, after which time they do not bear transplanting so well.

The fourth Sort was brought from Virginia into England. This is also very hardy, and will thrive in any Soil or Situation. It produces a Cluster of Bulbs on the Top of the Stalks, which, if permitted to fall on the Ground, will take Root, and thereby multiply exceedingly.

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ALYSSOIDES.

The Characters are ;

It hath a Flower in form of a Cross, consisting of four Leaves, out of whose Flower-cup rises the Pointal, which afterward becomes an elliptical thick Fruit, divided into two Cells by an intermediate Partition, which is parallel to the demi-elliptical turgid Valves, and filled with round flat Seeds, having Borders round them.

The Species are ;

1. *ALYSSOIDES fruticosum, leu-coii folio viridi. Tourn. 218.* Shrubby Alyssoides, with a green stock-gilliflower Leaf.

2. *ALYSSOIDES incanum, foliis sinuatis. Tourn. 218.* Hoary Alyssoides, with sinuated Leaves.

3. *ALYSSOIDES fruticosum Creticum, leu-coii folio incano. Tourn. Cor.* Shrubby Alyssoides of Candy, with a hoary stock-gilliflower Leaf.

4. *ALYSSOIDES orientalis annua, myagri sativi folio. Tourn. Cor.* Oriental annual Alyssoides, with a myagrum Leaf.

The first and third Sorts are perennial Plants, which rise to the Height of two or three Feet. These may be propagated by sowing their Seeds on a Border of light Earth in the Spring, and when the Plants are come up four Inches high, they may be transplanted into Pots fill'd with light fresh Earth, and placed in a shady Situation until they have taken new Root, when they may be exposed to the open Air until the latter End of *October*; when they should be placed under a common Hot-bed Frame, where they may be sheltered from severe Frost in Winter; but they must have as much free Air as possible in mild Weather, and should be frequently refreshed with Water. The following Summer they will flower, and produce ripe Seeds; but

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the Plants may be continued four or five Years, by sheltering of them in the Winter, as I have directed. They will often live thro' the Winter in the open Air, provided they are planted in a Situation where they are protected from the North and East Winds.

The second Sort is a biennial Plant. This must be sown on a Border of light Earth in the Spring, and when the Plants are come up three Inches high, some of them should be potted, in order to shelter them in Winter; but there should be some Plants left where they were sown; which in a warm Season will flower, and produce ripe Seeds the same Summer; but if these should miscarry, those in the Pots may be preserved thro' the Winter, under a common Frame; and in the succeeding Spring they should be turned out of the Pots into the full Ground, where they will flower strongly, and produce a large Quantity of Seeds.

The fourth Sort is an annual Plant. This must be sown on a warm Border in the Spring, in the Place where the Plants are to remain, for it doth not bear transplanting well; these Plants should be thinned, if they come up too thick; in *August* they will flower, and in *September* they will perfect their Seeds.

ALYSSON; Madwort.

To the *Species* mention'd in the former Volumes, add,

1. *ALYSSON perenne montanum incanum. Tourn. 217.* Hoary perennial Mountain Madwort.

2. *ALYSSON halimi folio argenteo angusto. Tourn. 217.* Madwort, with a narrow silver-colour'd leaf-purslain Leaf.

3. *ALYSSON fruticosum incanum. Tourn. 217.* Hoary Shrub Madwort.

4. *ALYSSON fruticosum aculeatum. Tourn. 217.* Prickly Shrub Madwort.

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5. *ALYSSON Creticum, foliis angulatis, flore violaceo.* Tourn. Cor. Candy Madwort, with angular Leaves, and violet-colour'd Flowers.

6. *ALYSSON veronica folio.* Tourn. 217. Madwort with a speedwel Leaf.

7. *ALYSSON segetum, foliis auriculatis acutis* Tourn. 217. Corn Madwort, with auriculated sharp-pointed Leaves.

8. *ALYSSON segetum, foliis auriculatis acutis, fructu majori.* Tourn. 217. Corn Madwort, with auriculated sharp-pointed Leaves, and a larger Fruit.

9. *ALYSSON incanum luteum, serpylli folio, majus.* Tourn. 217. Larger yellow hoary Madwort, with a Mother of Thyme Leaf.

10. *ALYSSON incanum, serpylli folio, minus.* Tourn. 217. Lesser hoary Madwort, with a Mother of Thyme Leaf.

The first, second and third Sorts, may be propagated by sowing of their Seeds soon after they are ripe, on a Bed of light Earth, in an open Situation, where the Plants will soon appear. These will continue two or three Years, and if their Seeds are permitted to scatter, the Plants will come up and thrive without any farther Care than to keep them clear from Weeds.

The fifth Sort is an abiding Plant, which rarely produces Seeds in *England*, but multiplies greatly by Offset, which may be planted into Pots filled with light fresh Earth, either in Spring or Autumn. These Pots must be sheltered from extreme Cold in Winter, but must have a great Share of Air in mild Weather. Some of the Plants may be planted on a warm Border, where they will endure the Cold of our ordinary Winters very well. This Plant produces great Quantities of Flowers early in the Spring.

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The other five Sorts are annual Plants, which should be sown early in the Spring, on a Bed of light fresh Earth, where they are to remain; for they do not bear transplanting well, so that the Plants should be thinned, and kept clear from Weeds, which is the only Culture they require. If the Seeds of these Sorts are suffered to scatter, the Plants will come up in Autumn, and stand through the Winter and thereby more certainly produce good Seeds the following Summer.

ANACAMPSEROS; Orpine or Live-long.

The Species are;

1. *ANACAMPSEROS, vulgo Faba creffa.* J. B. III. 681. Common Orpine.

2. *ANACAMPSEROS purpurea.* J. B. III. 682. Purple Orpine.

3. *ANACAMPSEROS maxima.* J. B. III. 682. Greatest Orpine.

4. *ANACAMPSEROS Lusitanica haematodes maxima.* Tourn. The greatest red Portugal Orpine.

5. *ANACAMPSEROS radice rosam spirante, major.* Tourn. 264. Greater Rose-root.

6. *ANACAMPSEROS radice rosam spirante, minor.* Tourn. 264. Lesser Rose-root.

7. *ANACAMPSEROS foliis eleganter variegatis.* Orpine with strip'd Leaves.

The first Sort grows wild in many Parts of *England*, in Woods, and other shady Places. This is the Sort which is directed by the College of Physicians to be used in Medicine.

The other Sorts are preserved by the Curious in Botany, for the sake of Variety; these may be planted in Pots, filled with fresh undunged Earth, and should have a shady Situation, where they will thrive better than if too much exposed to the Sun. They are all very hardy

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(except the striped Sort, which will require to be shelter'd in Winter) in respect to Cold, but they must not have too much Wet in Winter, which will sometimes rot their Roots. They may be transported either in Spring or Autumn, at which times their Roots may be parted to propagate them; or they may be increased by planting Cuttings of either of the four first Sorts, in any of the Summer Months, which will easily take Root, and may afterwards be transplanted where they are to remain; but the two Kinds of Rose-roots are only propagated by parting their Roots. These Plants should not be placed near a Dove-house, for the Pigeons are so fond of them, that they will soon destroy them. All these Sorts will thrive under the Shade of Trees.

ANAGALLIS; Pimpernel.

The Characters are;

The Flower consists of one Leaf, which is shaped like a Wheel, and cut into several Segments; the Pointal, which rises out of the Empalement, is fixed like a Nail in the middle of the Flower; afterwards becomes a roundish Fruit, which when ripe opens transversely into two Parts, one of which lies incumbent on the other, inclosing many angular Seeds, which adhere to the Placenta.

The Species are;

1. ANAGALLIS *phæniceo flore*. C. B. P. Male Pimpernel, with a red Flower.

2. ANAGALLIS *cæruleo flore*. C. B. P. Female Pimpernel, with a blue Flower.

3. ANAGALLIS *floribus obsolete purpureis*. Park. Theat. Pimpernel with Flowers of a worn-out purple Colour.

4. ANAGALLIS *flore albo*. C. B. P. Pimpernel with a white Flower.

5. ANAGALLIS *tenuifolia* Monnelli.

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Clus. Narrow-leav'd Pimpernel, with a blue Flower.

The first Sort is very common in the Corn-fields, and other cultivated Places, in most Parts of *England*. The second and third Sorts are sometimes found wild in the Fields, but are less common than the first in *England*. The fourth is a Variety of the second Sort, which arises accidentally from the Seed, and is not lasting. These four Sorts are annual Plants, which arise from Seeds in the *Spring*, and are seldom preserved in Gardens; but where-ever they grow, if they are permitted to remain until they have scattered their Seeds, they will thrive fast enough without any Care. The first and second Sorts are placed amongst the medicinal Plants in the College Dispensatory.

The fifth Sort is a very beautiful small Plant, which spreads on the Ground, like the former Sorts, but produces a great Number of fine blue Flowers in *April*, *May*, and *June*, which make a pretty Appearance: This may be propagated by sowing of the Seeds soon after they are ripe, on a warm Border of light Earth, where the Plants will arise in the *Spring*, and some of them will produce Flowers the same Season. Some of these Plants should be planted into Pots, that they may be sheltered in the Winter; for in very hard Frosts they are sometimes destroyed. This Sort will abide two or three Years, but rarely produces good Seeds in *England*.

ANAGYRIS; Stinking Bean-Trefoil.

The Characters are;

It hath a papilionaceous (or butterfly) Flower, whose Standard is short when compared to the other Petals: the Pointal, which arises from the Flower-cup, afterwards becomes a Pod shaped like a Kidney-bean, containing

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taining many kidney-shaped Seeds. To which Notes should be added, The Leaves grow by Threes on one common Foot-stalk.

The Species are ;

1. *ANAGYRIS foetida*. C. B. Stinging Bean-Trefoil.

2. *ANAGYRIS foetida Cretica, oblongis foliis, luteis floribus*. Barr. Icon. Candy stinking Bean-Trefoil, with oblong Leaves, and yellow Flowers.

The first Sort grows wild in the South of *France*, as also in *Spain* and *Italy*: This is a Shrub which usually rises to the Height of eight or ten Feet, and produces its Flowers in *April* and *May*, which are of a bright yellow Colour, growing in Spikes, somewhat like those of the *Laburnum*. The Seeds are seldom perfected in this Country, which is the Reason of its present Scarcity in *England*.

The other Sort is a Native of *Candy*, and some of the Islands of the *Archipelago*; and at present is very rare in the *English* Gardens. This Sort hath longer Leaves than the former, and flowereth later in the Summer, so that it very rarely produces Seeds.

These may be both propagated by laying down their tender Branches in the Spring, observing in dry Weather to supply them with Water; which if duly performed, the Layers will have taken Root by the following Spring, when they should be cut off from the old Plants, a little time before they begin to put out their Leaves, and planted in a warm Situation; for if they are too much exposed to the cold Winds, they will be in Danger of being destroyed in a hard Winter. This Method of propagating these Plants, is to supply their Defect in not producing ripe Seeds in this Country; for the

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Plants which are produced from Seeds, will be much handsomer, and will rise to a much greater Height.

If you propagate these Plants from Seeds, you should sow them on a warm Border of light fresh Earth, toward the End of *March*, observing always to do it in dry Weather; for if much Wet should fall after the Seeds are in the Ground, they will rot. If the Seeds are good, and the Season favourable, the Plants will appear in a Month after the Seeds were sown; at which time you should carefully clear them from Weeds, and in very dry Weather they should be frequently refreshed with Water; if these Rules be duly observed, the Plants will be six or eight Inches high before Winter. While they are young they will be in much greater Danger of suffering by Frost, than when they have obtained Strength; therefore, if the Winter should prove very severe, you should shelter them with Mats during the Continuance of the Frost; but in mild Weather they should always be exposed to the open Air. In *March* following you should carefully take them up, observing not to injure their Roots; then you must transplant them into a Nursery-bed, placing them in Rows at a Foot Distance, and the Plants at six Inches Distance in the Rows; observing, if the Season should prove dry, to give them Water until they have taken new Root; after which time they will require no other Culture, but to keep them clear from Weeds during the Summer Season; but if the following Winter should prove very severe, it will be proper to screen them either with Mats or Pease-haulm, otherwise they may be destroyed. In this Bed they may remain two Years, by which time they will

will be fit to transplant into the Places where they are designed to remain. The best Season to remove them is in *March*, just before they begin to shoot, and observe not to injure their Roots, as also to water them, if the Season should prove dry, until they have taken Root; likewise to lay some Mulch on the Surface of the Ground about their Roots, to prevent the Air from penetrating to dry their Fibres, which will save much Trouble in watering. The fourth Year from Seeds, these Plants will begin to produce their Flowers; and will continue to produce Flowers every Year after, and be very proper to intermix with other flowering Shrubs of the same Growth.

ANANAS; The Pine-Apple.

The Characters are;

It hath a Flower consisting of one Leaf, which is divided into three Parts, and is funnel-shaped; the Embryo's are produced in the Tubercles; these afterwards become a fleshy Fruit full of Juice; the Seeds which are lodged in the Tubercles are very small, and almost kidney-shaped.

The Species are;

1. ANANAS *aculeatus, fructu ovato, carne albida. Plum.* Oval-shaped Pine-apple, with a whitish Flesh.

2. ANANAS *aculeatus, fructu pyramidato, carne aurea. Plum.* Pyramidal Pine-apple, with a yellow Flesh.

3. ANANAS *folio vix serrato. Boerb. Ind. alt. 2. 83.* Pine-apple with smooth Leaves.

4. ANANAS *lucide virens, folio vix serrato. Hort. Elb.* Pine-apple with shining green Leaves, and scarce any Spines on their Edges.

5. ANANAS *aculeatus, fructu pyramidato, carne aurea.* The Pine-apple, with a pyramidal Fruit, commonly called the Sugar-loaf Pine in *Barbadoes*.

6. ANANAS *fructu ovato ex lutea*

wirescente, carne lutea. The olive-coloured Pine.

The first Sort is the most common in *Europe*, but the second Sort is much preferable to it, the Fruit of this being larger, and much better flavoured; the Juice of this Sort is not so astringent as is that of the first, so that this Fruit may be eaten in greater Quantity, with less Danger. This Sort generally produces six or seven Suckers, immediately under the Fruit, whereby it may be increased much faster than the common Sort, so that in a few Years it may be the most common Sort in *England*.

The third Sort is preserved by some curious Persons, for the sake of Variety; but the Fruit is not near so good as either of the former. The fifth Sort is at present the most rare in *Europe*; there being very few of the Plants at present: This is esteemed the best Sort yet known, by some of the most curious Persons in *America*, who have thrown out all the other Sorts from their Gardens, and cultivate only this Kind. The Plants of this Sort may be procured from *Barbadoes* and *Montserrat*, in both which Places it is cultivated. The sixth Sort was brought from *Jamaica*: this is not very common in *England* as yet; it is esteemed a very good-flavoured Fruit by those Persons who have tasted it; but being a very backward Sort, it is less valuable in our Climate; for this Sort will require a Month longer to ripen, from the first Appearance of the Fruit to its Maturity, than those of the other Sorts. I have also heard of another Kind of Pine, whose Flesh is very green, and the Outside yellow; but having never seen the Sort, I cannot give any Account of it. There are many other Kinds to be found in the several Countries where

where they are cultivated, which have arisen from Seeds, which differ in their Shape, Colour, and the Flavour of their Fruit; so that as these Fruits become common in *Europe*, all the bad Sorts should be rejected, and such only as produce fine Fruit should be cultivated.

In the former Volumes of the *Gardeners Dictionary*, I have given full Directions for the cultivating this excellent Fruit in *England*; and shall not repeat here what is already inserted in that, but shall add a few Instructions founded on later Observations: as also Directions how to manage such as are infested with Insects, which often totally destroy the Plants, or at least weaken them so much, as not to be recovered in less than a Year, though managed with the greatest Skill. And, First,

As to the Earth, in which these should be planted, if you have a rich good Kitchen Garden Mould, not too heavy, so as to detain the Moisture too long, nor over-light and sandy, it will be very proper for them without any Mixture; but where this is wanting, you should procure some fresh Earth from a good Pasture, which should be mixed with about a third Part of rotten Neats-dung, or the Dung of an old Melon or Cucumber-bed, which is well consumed. These should be mixed two or three Months at least before they are used, and should be often turned, that their Parts may be the better united, as also the Clods well broken. This Earth should not be screened very fine; for if you only clear it of the great Stones, it will be better for the Plants, than when it is made too fine. You should always avoid mixing any Sand with the Earth, unless it be extremely stiff; and then it will be necessary to have it mixed at least six Months before it is used, and it must

be frequently turned, that the Sand may be incorporated in the Earth, so as to divide its Parts; but you should not put more than a sixth Part of Sand, for too much Sand is very injurious to these Plants.

In the Summer Season, when the Weather is warm, they must be frequently watered, but you should not give them large Quantities at each time; you must also be very careful, that the Moisture is not detained in the Pots, by the Holes being stopped, for that will soon destroy the Plants. If the Season is warm, they should be watered every other Day, but in a cool Season twice a Week will be often enough; and during the Summer Season, you should once a Week water them gently all over their Leaves, which will wash the Filth from off them, and thereby greatly promote the Growth of the Plants.

There are some Persons who frequently shift these Plants out of the Pots; but this is by no means to be practised by those who propose to have large well-flavoured Fruit; for unless the Pots be filled with the Roots, by the time the Plants begin to shew their Fruit, they commonly produce small Fruit, which have generally large Crowns on them: so that the Plants will not require to be new-potted oftener than twice in a Season; the first time should be about the End of *April*, when the Suckers and Crowns of the former Years Fruit (which remained all the Winter in those Pots in which they were first planted) should be shifted into larger Pots; *i. e.* those which were in half-penny or three-farthing Pot, should be put into penny, or at most, three-half-penny Pots, according to the Size of the Plants; for you must be very careful not to over-pot them, nothing being more prejudicial to these

these Plants. The second time for shifting of them, is, toward the latter End of *August*, or the Beginning of *September*, when you should shift those Plants which are of a proper Size for fruiting the following Spring, into two-penny Pots, which are full large enough for any of these Plants. At each of these times of shifting the Plants, the Bark-bed should be stirred up, and some new Bark added, to raise the Bed up to the Height it was at first made; and when the Pots are plunged again into the Bark-bed, the Plants should be watered gently all over their Leaves, to wash off the Filth, and to settle the Earth to the Roots of the Plants. If the Bark-bed be well stirred, and a Quantity of good fresh Bark added to the Bed, at this latter shifting, it will be of great Service to the Plants, and they may remain in the Tan, until the Beginning of *November*, or sometimes later, according to the Mildness of the Season, nor will they require any Fire before that time. During the Winter Season these Plants must not be watered oftener than every third or fourth Day, according as you find the Earth in the Pots to dry; nor should you give them too much at each time, for it is much better to give them a little Water often, than to over-water them, especially at that Season.

You must observe never to shift those Plants which shew their Fruit, into other Pots; for if they are removed after the Fruit appears, it will stop the Growth, and thereby cause the Fruit to be smaller, and retard its ripening; so that many times it will be *October* or *November* before the Fruit is ripe. Therefore you should be very careful to keep the Plants in a vigorous growing State, from the first Appearance of

the Fruit, for upon this depends the Goodness and Size of the Fruit; because if they receive a Check after this, the Fruit is generally small and ill-tasted.

When you have cut off the Fruit from the Plants, whose Kind you are desirous to propagate, you should trim the Leaves, and plunge the Pots into a moderate Hot-bed, observing to refresh them frequently with Water, which will cause them to put out Suckers in plenty; so that a Person may be soon supplied with Plants enough of any of the Kinds, who will but observe to keep their Plants in Health.

There is not any thing which can happen to these Plants, of a more dangerous Nature, than to have them attacked by small white Insects, which appear at first like a white Mildew, but soon after have the Appearance of Lice; these attack both Root and Leaves at the same time, and if they are not soon destroyed, will spread over a whole Stove in a short time; and in a few Weeks will entirely stop the Growth of the Plants, by sucking out the nutritious Juice; so that the Leaves will appear yellow and sickly, and have generally a great Number of yellow transparent Spots all over them. These Insects, after they are fully grown, appear like Bugs; and adhere so closely to the Leaves, as not to be easily washed off, and seem as if they had no Life in them. They were originally brought from *America*, upon the Plants which were imported from thence; and I believe they are the same Insect which have destroyed the Sugar Canes of late Years, in some of the *Leeward* Islands. Since they have been in *England*, they have spread greatly in such Stoves, where there has not been more than ordinary Care taken to destroy them. They have

have also attacked the Orange-trees in many Gardens near *London*, and have done them incredible Damage; but I do not find they will endure the Cold of our Climate in Winter, so that they are never found on such Plants as live in the open Air. The only Method I have yet been able to discover for destroying these Insects, is, by washing the Leaves, Branches, and Stems, of such Plants as they attack, frequently with Water, in which there has been a strong Infusion of Tobacco-stalks; which I find will destroy the Insects, and not prejudice the Plants. But this Method cannot be practised on the Ananas Plants, because the Insects will fasten themselves so low between the Leaves, that it is impossible to come at them with a Sponge to wash them off; so that if all those which appear to Sight are cleared off, they will soon be succeeded by a fresh Supply from below; and the Roots will be also equally infested at the same time. Therefore, where-ever these Insects appear on the Plants, the safest Method will be, to take the Plants out of the Pots, and clear the Earth from the Roots; then prepare a large Tub, which should be filled with Water, in which there has been a strong Infusion of Tobacco-stalks; into this Tub you should put the Plants, placing some Sticks cross the Tub, to keep the Plants immersed in the Water. In this Water they should remain twenty-four Hours; then take them out, and with a Sponge wash off all the Insects from the Leaves and Roots, which may be easily effected when the Insects are killed by the Infusion; then cut off all the small Fibres of the Roots, and dip the Plants into a Tub of fair Water, washing them therein, which is the most effectual way to clear them from the Insects. Then you should pot them in fresh

Earth, and having stirred up the Bark-bed, and added some new Tan to give a fresh Heat to the Bed, the Pots should be plunged again, observing to water them all over the Leaves (as was before directed); and this should be frequently repeated during the Summer Season; for I observe these Insects always multiply much faster where the Plants are kept dry, than in such Places where they are duly watered, and kept in a growing State. And the same is also observed in *America*; for it is in long Droughts that the Insects make such Destruction of the Sugar Canes. And in those Islands where they have had several very dry Seasons of late, they have increased to such a degree, as to destroy the greatest Part of the Canes in the Islands, rendering them not only unfit for Sugar, but so poisoning the Juice of the Plant, as to render it unfit to make Rum; so that many Planters have been ruined by those Vermin.

As these Insects are frequently brought over from *America* on the Ananas Plants, which come from thence, those Persons who procure their Plants from thence, should look carefully over them when they receive them, to see they have none of these Insects on them; for if they have, they will soon be propagated over all the Plants in the Stove where these are placed; therefore, whenever they are observed, the Plants should be soaked as was before directed, before they are planted into Pots.

It hath been the common Practice of most Persons, who have cultivated this Fruit in *Europe*, to build dry Stoves in which they keep their Plants in Winter, placing the Pots on Scaffolds, (after the manner in which Orange-trees are placed in a Green-house) and in the Summer
to

to keep them in Hot-beds of Tan-ners Bark under Frames ; but this is found by late Experience a bad Method ; for the Glasses lying so near over the Plants, there is not a sufficient Quantity of Air in the Bed to nourish the Fruit, and give it that vinous Flavour which good Fruit always abounds with ; and when these Glasses are closely shut down in the Night, the Vapours which arise from the Fermentation of the Tan, and the Perspiration of the Plants, are closely pent in, and being condensed against the Glasses, fall in Water on the Plants.

Therefore, to remedy this Inconvenience, it is now the Practice of those Persons who are desirous to propagate this Fruit, to erect low Stoves, with Pits therein for the Hot-bed, after the manner of the Bark-stove, (described and figured in the first Volume of the *Gardeners Dictionary*) but much lower ; for as these Plants do not grow above three Feet, or at most three Feet and a half, above the Pot in Height, there is no Necessity for having these Stoves very high. Some Persons build them with upright Glasses in Front, about four Feet high, and sloping Glasses over these, which rise about six Feet high, so that there is just Height enough for Persons to walk upright, on the Back-side of the Bark-bed. Others make but one Slope of Glasses, from the Top of the Stove, down to the Plate, which lies about six or eight Inches above the Bark-pit, in the Front of the Stove. So that in this Stove there is no Walk made in the Front between the Bark-pit and the Glasses ; nor is it very necessary, where the Bark-pit is not above six Feet and a half wide ; for it will be easy to reach from the Walk on the Back-side of the Pit, to water the Plants in Front, with a Watering-

pot that has a long Spout ; and when the Plants are to be shifted, or the Bark renewed, which is not done but in the Spring or Summer Months, the Glasses may be taken down, and the Plants removed with Safety. One of these Stoves about twenty Feet long in the Clear, with the Pit for the Tan reaching from End to End, and six Feet and a half wide, will contain about a hundred Plants ; so that whoever is desirous to have this Fruit, may easily proportion their Stove to the Quantity of Fruit which they are willing to have.

But it will be also necessary to have a Bark-pit under a deep Frame, in order to raise the young Plants ; for in this Bed you should plunge the Suckers, when they are taken from the old Plants, as also the Crowns which come from the Fruit ; so that this Frame will be as a Nursery to raise the young Plants to supply the Stove. But the Plants should not remain in these Frames longer than till the Beginning of *November*, at which time they must be removed into the Stove, and being small, may be crowded in amongst the larger Plants ; for as they will not grow much during the Winter Season, they may be placed very close together. The Beginning of *March* you must remove these Plants out into the Hot-bed again, which should be prepared a Fortnight before, that the Tan may have acquired a proper Heat ; but you should be careful that it be not too hot ; for that might scald the Fibres of the Plants, if they are suddenly plunged therein. Therefore, if you find the Bark too hot, you should not plunge the Pots above two or three Inches into the Tan, letting them remain so until the Heat of the Tan is a little abated, when you should plunge the Pots down to their Rims in the Bed. If

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the Nights should continue cold after these Plants are removed into the Bed, you must carefully cover the Glasses with Mats; otherwise by coming out of a warm Stove, they may receive a sudden Check, which will greatly retard their Growth, which must be carefully avoided, because the sooner the Plants are set growing in the Spring, the more time they will have to gain Strength, in order to produce large Fruit the following Season.

You should not plunge the Pots too close together in this Frame, but allow them a proper Distance, that the lower Part of the Plants may increase in Bulk, because it is on this that the Magnitude of the Fruit depends; for when the Plants are placed too close, they draw up very tall, but do not obtain Strength; so that when they are taken out of the Bed, the Leaves are not able to support themselves; but all the outward long Leaves will fall away, leaving the smaller middle Leaves naked; and this sometimes will cause them to rot in the Centre. You must also observe, when the Sun is very warm, to raise the Glasses of the Hot-bed with Stones, in order to let out the Steam of the Bed, and to admit fresh Air; for one Neglect of this kind, in a very hot Day, may destroy all the Plants, or at least so scald them, that they will not get over it in many Months. It will also be very proper, in extreme hot Weather, to shade the Glasses in the middle of the Day with Mat; for the Glasses lying so near to the Leaves of the Plants, will occasion a prodigious Heat at such times.

There are several Persons who let their Ananas Plants remain plunged in the Bark-bed in the Stoves all the Winter Season; but where this is practised, the Plants must not be

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watered so often, as those which are placed on Boards during that Season: for the Moisture which arises from the Bark, will preserve the Bottom of the Pots from drying, so that a small Share of Water will be sufficient for these Plants. Others, who do not permit their Plants to remain in the Tan all the Winter, and have no dry Stove, raise their Pots out of the Bed, and level the Bark; then lay some old Boards on the Bark, upon which they place their Pots; in this Situation they let them remain until the Beginning of *March*, at which time they renew the Bark-bed in the Stove, and plunge the Plants therein. In renewing of the Bark at this Season, it is not necessary to take all the old Bark out; one half of it will be sufficient; for the remaining half should be stirred to the Bottom, and mixed with the new Tan, which will prevent it from being too hot. The Pits in these Stoves need not be more than two Feet and a half, for that will contain a sufficient Quantity of Tan, to preserve a Heat; but these Stoves are figured and described under the Article of *Stoves*.

As there have been some new Improvements made in the Culture of the Pine-apple, of late Years, I shall subjoin what has come to my Knowledge on that Head. One of the most considerable Improvements, which has been of late made, is that of planting the Plants (when full grown) into the Tanners Bark out of the Pots. The Person who practised this, was Mr. *Blackbourn*, a very curious Gentleman in *Lancashire*; who has a great Parcel of these Plants, and a large Collection of other curious Exotics, which are in great Perfection. But as I have not been informed of his Method of planting

planting the Ananas, so I shall set down what I have practised, and have found to succeed extremely well.

The Suckers or Crowns of the Ananas, should be planted in small half-penny Pots, filled with fresh rich Earth, and plunged into the Hot-bed of Tanners Bark, in the same manner as is usually practised, and hath been before directed. During the Winter Season they must be kept warm, and frequently watered, which will greatly promote their Growth; so that a Frame contrived with the Flues in the Back-wall, in the manner described under the Article *Stove*, will be the most convenient for raising of the young Plants, because they will be kept in the Bark-bed, which is a great Advantage, especially to the young Plants; for as their Pots are small, so, when they are placed on the Flues of the Stove, or on Shelves, as is commonly practised, the Moisture passes away too fast from their Roots, and the Earth in the Pots soon becomes dry, which greatly retards the Growth of the Plants: whereas when they are plunged in the Tan, the Moisture which arises from the Fermentation, will always supply the small Fibres, which are near the Hole in the Bottom of the Pot, with Nourishment, and greatly assist them; a small Fire will warm so small a Space of Air, as is included in one of these Frames.

The Suckers which are planted the latter End of Summer, or in Autumn, will have filled the small Pots with their Roots, by the middle of *April* following, when the Bark-bed should be renewed, and the Plants shaken out of these small Pots, and their Roots trimmed, and then planted into penny Pots filled with light rich Earth as before. These Pots are about seven Inches over at the Top, and will be large enough to contain

the Plants, until they are planted into the Tan; for when their Roots are confined, the Plants always make a greater Progress, than if they are frequently shifted, or planted in large Pots; therefore they should remain unremoved in these Pots, till the *Michaelmas* following, observing when the Tan declines its Heat, to stir it up again, and add some fresh Tan to it, which will renew the Heat, and cause the Plants to grow vigorously; but this should always be done in good Weather, that the Plants may not receive any Injury by being exposed to the open Air. During the Summer Season, if the Nights should prove cold, it will be proper to cover the Glasses of the Hot-bed with Mats, which will be of great Service to the Plants, by keeping them constantly growing; for they cannot grow too freely, since the greater Strength they obtain before *Michaelmas*, the larger will be their Fruit. But great Care should be had, not to plunge them too close together at this Season, for that will cause them to draw up weak; so that their Leaves will be of a great Length, but their Stems will be small, and consequently their Fruit will be so too; since it is only such Plants as are large and stocky at Bottom, which produce the largest Fruit. For which Reason also, the Bark-bed should always be kept up to a proper Height, allowing only room for the Leaves of the Plants to stand under the Glasses, without being bruised or injured; for when the Bed sinks, so as to leave a large Vacancy between the Plants and the Glasses, the Plants will draw up weak, by being too low to receive the Benefit of the free Air, which should be every Day admitted to them in warm Weather, by raising of the Glasses with Stones, Bricks,

&c. in proportion to the Warmth of the Season. They must be constantly watered three or four times a Week in hot Weather, but the Quantity of Water must be proportioned to the Dryness of the Earth in the Pots; for some Pots will let the Water pass off much sooner than others, and some of the Plants will imbibe the Moisture faster; so that when the Earth in any of the Pots appears moist, they should not be watered; for which Reason, the Plants must be carefully observed, whenever they have Water given to them. In cool or dark Weather, when the Glasses of the Hot-bed will not admit of being raised to let in fresh Air, the Steam of the Hot-bed, and the Vapours arising from the Perspiration of the Plants, will condense to Moisture against the Glasses, which will fall in Drops on the Plants, and is often very injurious to them: to prevent which, the Glasses should be turned upside down to dry, or the Moisture wiped off them in wet Weather, when they cannot be turned. But where a Person will be at a small Expence, this Evil may be more effectually remedied, by having Shutters of Bays, or other woollen Cloth, placed under the Glasses, which will imbibe all the Moisture which arises from the Bed, and should be taken out every Morning, and placed in the open Air to dry, and be put in every Evening, or in cold foggy Days, when there is no Sun-shine. These Contrivances I have known used with great Success, in raising Cucumbers and Melons very early in the Spring; for in those Hot-beds which are made with Horse-dung, there is always a much greater Steam, than ever arises from the Tanners Bark; and this being of a very rancid Nature, is oftentimes destructive to these tender Plants, especially in moist

dark Weather, which frequently happens in the Winter Months in *England*. But in Stoves or in Frames, where there are Fires, this Vapour being kept rarefied, seldom condenses against the Glasses in such Quantities as to injure the Plants. Therefore these Shutters (if I may be allowed so to call them) are not so necessary for these, especially at such times when the Fires are continued every Night; but in cold Weather, in the Spring, or Autumn, when the Fires are discontinued, or in such Frames where there is no Convenience to make Fires, they are of great Use, to imbibe the Moisture arising from the Bed.

These Shutters are easily made, for there is nothing more required, but to make slight Frames (somewhat like the stretching Frames for Pictures) to fit the Inside of the Frame, so as to lie just under the Glasses: to these Frames should be nailed the Bays, in like manner as is done for Screens, with a List of Tape round the Edges where the Nails are driven, which will secure the Bays from being torn by the Nails. The coarser the Bays which is used for this Purpose, the more Moisture it will imbibe, so that the Expence will be less; but it should not be of a dark or black Colour, because the Rays of Light will be absorbed by it, to the Prejudice of the Plants. In dark, cloudy or foggy Weather, which sometimes continues for several Days in the Winter Season, these Shutters should be taken out twice every Day, and placed near a Fire to dry; for in the Morning they must be taken out to dry the Moisture from them, which they had imbibed in the Night; and in the Afternoon they must be dried again, that they may be put into the Frame dry in the Evening. But as

it will be difficult to dry these Shutters in damp Weather, it will be proper to have two Sets of them, one for the Night, and the other for the Day; so that by shifting them alternately, they will have Time enough to be thoroughly dried, and the Bed be constantly supplied with them; by which means there will be no room for the Vapours to condense against the Glasses.

But to return to the Management of the Ananas Plants: About the latter End of *September*, or the Beginning of *October*, the Plants must be planted into the Tan; at which time there must be some new Tan provided, in Quantity proportionable to the Size of the Pit; so that about half the Tan it will contain should be fresh, which ought to be well mixed with some of the old Tan, and about ten Inches Thickness all of the old Tan laid on the Top of the Bed, into which the Plants must be placed. After the Bed is well mixed, and the Tan levelled on the Surface, which should be raised five or six Inches above the Level of the Walk, to allow for the Settling of the Bark; then the Plants should be carefully shaken out of the Pots, preserving the Ball of Earth to their Roots; and after having taken off the decayed Leaves at the Bottom of the Plants, they should be planted into the Bark-bed, regularly in Rows, about two Feet asunder, or less, according to the Size of the Plants; for if they have Room to stand without crowding each other too much, it will be sufficient, because the Plants will not grow much more in Leaves, but will, soon after they have taken Root in the Tan, begin to spread open their Hearts, and prepare to shew their Fruit; which those which are thus treated seldom fail of doing by *Christmas*, or soon after; so that

the Fruit will ripen much earlier in the Summer, than those which are kept in Pots, because they fruit earlier in Winter, and then do not receive any Check in the Spring. When these Plants are well rooted in the Tan, they will thrive much faster than those in Pots, and their Roots will extend quite over the Bark-bed; so that the Fruit will be well nourished, and the Stems of these Fruit being much stronger than those in Pots, will support the Fruit much better.

The Plants which are thus planted in the Tan, will require less Water than those in the Pots, especially in Winter; during which Season, they need not be watered oftener than twice a Week, and the Quantity given to each Plant should not be more than a Pint; but in the Summer, they will require a larger Share of Water, and to be oftener repeated. When the Plants are placed into the Tan, it will be proper to fix down a few Stakes round the Bark-bed, to which a couple of Lines of Packthread may be fixed to surround the Bed; the lowest of which should be about a Foot above the Bark, and the other a Foot above that. The Use of these Lines is to support the Leaves, so as to bear them out of the Walk, that they may not be broken or braised by Persons walking near them; which is a much better Method than cutting off the large Leaves, as is most commonly practised, which is certainly injurious to the Plants, because they not only bleed at the wounded Parts, but also imbibe some noxious Damps from the circumambient Air.

As the Plants which are planted in the Tan cannot be removed in the Spring, it will be proper to stir the Surface of the Bark-bed at that Season; but this must be carefully performed

performed with the Hands, so as not to break or bruise any of the Leaves of the Plants: And if at the same time a little new Tan is added, to raise the Surface of the Bed where it may have sunk too much, it will not be amiss, provided Care be taken not to raise the Tan too high about the Stems of the Plants, which would cause the under Leaves of the Plants to decay. During the Summer Season they must be managed in the same manner as hath been directed for those Plants which are kept in Pots, with this Difference only, *viz.* that they will require less Water, and not so large a Share of Air; for as the Heat of the Tan will be nearly spent before Summer, so the only Warmth of the Stove will be what is occasioned by the Heat of the Sun; for I do not approve of making any Fires in the Stoves in Summer, unless there is an absolute Necessity for it, which can never happen but when the Weather is very bad, and no Sun appears for some Days; and then there should be only very slight Fires made, and those continued no longer than during the dark Weather; for one Hour's Sunshine in the Spring and Autumn, when the Rays are weak, will warm the Air of the Stoves sufficiently.

There are some Persons who will object to this Method of planting the Plants in Tan, for no other Reason, but because they think there should be new Tan added, to renew the Heat of the Bed in the Spring, which cannot be practised in this Method: But this I am satisfied there is no Necessity for, from several Experiments, as well as from the Reason of things; for I have observed a much greater Warmth in the Tan, after it has been a whole Year in the Bed, than there ever is in the Earth eighteen Inches below the Surface in

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the hottest Countries where the Ananas grow; so that if the Air of the Stove is kept sufficiently warm, there will require no additional Heat to the Roots of the Plants.

As these Plants will ripen their Fruit earlier than those in Pots, they will be all of them cut before the Time for bringing the young Plants into the Stove for the succeeding Year; therefore the old Stools may be taken out of the Bed, and the Suckers taken off for an Increase (if any of them are then remaining on); and if a larger Supply of Plants are wanting, the Stools may be planted into Pots, and preserved through the Winter, which will put out new Suckers the following Spring; but where this is not wanted, they may be thrown away.

ANGURIA; The Water-Melon.

The Characters are;

It hath trailing Branches, as the Cucumber or Melon, and is chiefly distinguished from the other cucurbitaceous Plants by its Leaf, which is deeply cut and jagged, and by its producing an eatable Fruit.

The Species are;

1. *ANGURIA citrullus dista.*
C. B. P. Common Water-Melon, called Citrill.

2. *ANGURIA Indica maxima.*
C. B. P. The largest Indian Water-Melon.

3. *ANGURIA carne rubente, semine nigro majori.* *Inst. R. H.* Water-Melon with a red Flesh, and large black Seeds.

4. *ANGURIA carne rubente, semine nigro minori.* *Inst. R. H.* Water-Melon, with a red Flesh, and smaller Black Seeds.

5. *ANGURIA carne flavescente, semine nigro.* *Inst. R. H.* Water-Melon, with a yellowish Flesh, and black Seeds.

6. *ANGURIA fructu rotundo, carne rubente, semine rubro.* Water-Melon, with a round Fruit, having a red Flesh, and red Seeds.

7. *ANGURIA triphyllos Americana, parvo fructu.* *Inst. R. H.* Three-leav'd *American* Water-Melon, with a small Fruit.

8. *ANGURIA Americana, fructu echinato eduli.* *Inst. R. H.* *American* Water-Melon, with a prickly eatable Fruit.

The six first-mentioned Sorts are cultivated in *Spain, Portugal, Italy*, and most other warm Countries in *Europe*; as also in *Africa, Asia*, and *America*; and are by the Inhabitants of those Countries, greatly approved for their wholesome cooling Quality; but in *England* they are not so universally esteemed, though some few Persons are very fond of them. I shall therefore give Directions for the raising of these Fruits, so that such Persons as are willing to be at the Expence and Trouble of doing it, may not be at a Loss for Instructions.

You must first provide yourself with some Seeds, which should be two or three Years old; for new Seeds are apt to produce vigorous Plants, which are seldom so fruitful as those of a moderate Strength. The best Sorts to cultivate in *England*, are the fourth and sixth Sorts; and next to these are the first and fifth Sorts; for the second and third Sorts produce very large Fruit, which seldom ripen in this Climate. Having provided yourself with good Seed, you should prepare a Heap of new Dung the Beginning of *February*, which should be thrown in a Heap for about eight Days to heat; then you should make a Hot-bed for one single Light, for which one good Load of Dung will be sufficient; this Dung should be well wrought in

making of the Bed, and must be beaten down pretty close with a Dung-fork, that the Heat may not be too violent, and of longer Continuance: When the Dung is thus laid, you should cover it about four Inches thick, with good light Earth, and having spread it very even, you should put the Frame and Glass over it, leaving it to warm, two Days before you put the Seeds into it, observing, if the Steam rises pretty much, to raise up the Glass with a Stone, to let it pass off. Then, if you find your Bed in proper Temper, you may sow your Seeds therein in Drills, covering them over with Earth, about half an Inch. After this, if you find your Bed very warm, you must give Air in the Day-time by raising of the Glasses; but if the Bed is cool, you must cover it well with Mats every Night, as also in bad Weather. In four or five Days after, you must prepare another Hot-bed to receive these Plants, which will be fit to transplant in ten Days, or a Fortnight at most, after the Seeds are sown; this Bed need not be very large, for a few of these Plants fill a great Number of Frames, when they are planted out for good; and while the Plants are young, there may be a great Quantity kept in one Light; therefore those Persons who raise early Cucumbers, and Musk-Melons, may also raise these Plants in the same Bed; for two or three Lights will be sufficient to raise Plants enough of all three Kinds, to supply the largest Families, until they are planted out for good. In the Management of these Plants while young, there is little Difference from the Directions given in the former Volumes for raising Musk-Melons; therefore I need not repeat it here. The chief thing to be observed, is, to let them have a large Share of Air

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Air whenever the Weather will permit; otherwise the Plants will draw up weak, and be good for little. As these Plants will require two or three Hot-beds, to bring the Fruit to Perfection, it will be the better way to put the Plants into Baskets, as was directed for the raising of early Cucumbers; but you should not plant more than two Plants in each Basket, for if one of them lives, it will be sufficient; therefore when both the Plants succeed, you should draw out the weakest and most unpromising of them, before they begin to put out their Side-shoots; otherwise they will entangle, and render it difficult to be performed, without greatly injuring the remaining Plant.

The Baskets in which these Plants are to be planted, need not be more than a Foot Diameter, so that one Frame will contain twelve of them; which will be sufficient for thirty-six Lights, when they are planted out for good; for where the Plants are vigorous, one single Plant will spread so far as to fill three Lights; and if they have not room, they seldom set their Fruit well.

These Baskets may remain in the Nursery-beds, until the Plants have spread, and put out many Runners; for when the Heat of this Bed declines, it is soon revived by adding a proper Lining of warm Dung to the Sides of the Bed quite round; so that when they are taken out of this Bed, and placed in the Ridges where they are to remain, the Heat of these Beds will last so long as to set their Fruit, which is of great Consequence; for when the Plants are ridged out very young, the Beds are generally made of a great Thickness in Dung, in order to continue their Heat; so that for some time after they are made, they are so extreme hot, as to endanger the scalding of the Plants:

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and by the time the Fruit begins to appear, there is little Heat left in the Beds, which often occasions the Fruit to drop off, and come to nothing.

After these Plants are placed in the Beds where they are to remain, you must carefully lead the Shoots as they are produced, so as to fill each Part of the Frame, but not to crowd each other; and be careful to keep them clear from Weeds, as also to admit fresh Air whenever the Weather will permit; they must also be frequently watered, but do not give it them in great Quantities. In short, there is little Difference to be observed in the Management of these, from that of Musk-Melons, but only to give them more room, and to keep the Beds to a good Temperature of Heat, without which these Fruit will seldom come to good in this Country.

ANONIS; Rest-Harrow.

The *Species* omitted in the former Volumes, are;

1. ANONIS *Caroliniana perennis non spinosa, foliorum marginibus integris, floribus in thyrsis candidis.* Smooth perennial Carolina Rest-Harrow, with intire Leaves, and white Flowers growing, in a loose Spike.

2. ANONIS *Hispanica frutescens, folio tridentato carnos.* Inst. R. H. Shrubby Spanish Rest-Harrow, with a tridented fleshy Leaf.

3. ANONIS *Alpina humilior, radice ampla & dulci.* Inst. R. H. Dwarf Rest-Harrow of the Alps, with a large sweet Root.

4. ANONIS *Alpina pumila glabra non spinosa purpurea.* Inst. R. H. Dwarf smooth purple Rest-Harrow of the Alps.

5. ANONIS *Hispanica frutescens, folio rotundiori.* Inst. R. H. Shrubby Spanish Rest-Harrow, with a rounder Leaf.

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6. *ANONIS frutescens Americana*, *flore purpureo*. *Inst. R. H.* Shrubby American Rest-Harrow, with a purple Flower.

7. *ANONIS Asiatica frutescens*, *floribus luteis amplis*. *Inst. R. H.* Asiatic shrubby Rest-Harrow, with large yellow Flowers.

8. *ANONIS Americana angustifolia humilior*, & *minus hirsuta*. *Houst.* Dwarf narrow-leav'd American Rest-Harrow.

9. *ANONIS non spinosa, foliis cistifloris, glutinosis & odoratis*. *Sloan. Cat. Jam.* Shrubby glutinous and sweet-smelling American Rest-Harrow, without Thorns, and Leaves like the Dwarf Cistus.

10. *ANONIS Americana erectior non spinosa, foliis rotundioribus, floribus amplis luteis*. Upright American Rest-Harrow, without Spines, having round Leaves, and large yellow Flowers.

11. *ANONIS viscosa, spinis carens, lutea major*. *C. B. P.* Large yellow Rest-Harrow, without Spines.

12. *ANONIS spinis carens, lutea minor*. *C. B. P.* Smaller yellow Rest-Harrow, without Spines.

13. *ANONIS flore luteo parva*. *H. R. Par.* Rest-Harrow, with a small yellow Flower.

14. *ANONIS pusilla glabra angustifolia lutea*. *Inst. R. H.* Smooth narrow-leav'd Dwarf Rest-Harrow, with a yellow Flower.

15. *ANONIS non spinosa, flore luteo variegato*. *C. B. P.* Smooth Rest-Harrow, with a yellow variegated Flower.

16. *ANONIS non spinosa hirsuta viscosa, odore theriacæ*. *Hort. Cath. Sup.* Hairy viscous Rest-Harrow, without Spines, and smelling like Venice-treacle.

17. *ANONIS non spinosa minor glabra procumbens, flore luteo*. *Sloan. Cat. 75.* Lesser trailing smooth Ame-

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rican Rest-Harrow, without Spines, and having yellow Flowers.

The first Sort is a perennial Plant, which dies to the Root every Winter, but rises again the succeeding Spring. This Plant produces long Spikes of white Flowers in *June*, and the Seeds ripen in *September*. It is propagated from Seeds, which should be sown in the Spring upon a gentle Hot-bed; and when the Plants are come up, they should be transplanted each into a separate Half-penny Pot, filled with fresh Earth, and plunged on another very moderate Hot-bed, observing to water and shade them until they have taken Root, after which time they should be inured to the open Air; and in the latter End of *June* the Pots should be placed abroad, where they may remain until the middle of *October*, when they must be placed under a Hot-bed Frame; to shelter them in severe Frost; but in mild Weather they should have as much free Air as possible. The Spring following these Plants should be taken out of the Pots, and planted in warm Borders, where they are to remain; for they shoot their Roots a great Depth into the Earth, so do not bear transplanting well after they have made strong Roots. These Plants will continue several Years, and as their Roots increase, they will produce a great Number of Flowers.

The second, third, fourth and fifth Sorts, are abiding Plants, which may be propagated by sowing of their Seeds in the same manner as hath been directed in the former Volumes; and the young Plants should also be treated the first Year as was directed there. The following Spring you must plant out the third and fourth Sorts into the full Ground, where they will thrive much better than if kept in Pots; and being both very

very hardy, they will endure the severest Cold of our Climate without Shelter. These produce their Flowers in *April* and *May*, and in good Seasons will sometimes perfect their Seeds in *England*.

The second and fifth Sorts become shrubby; these are more tender than the former Sorts, so that some of these Plants should be kept in Pots, that they may be sheltered from the Frost in Winter; and the others may be planted in a warm Border, where they will endure the Cold of our ordinary Winters very well; but in very sharp Winters, those Plants which are exposed, will be destroyed. These two Sorts flower in the Spring, (at which time they make a handsome Appearance amongst other hardy Exotic Plants) and sometimes they will produce ripe Seeds in *England*. They may also be propagated by Cuttings, which should be planted in Pots filled with light rich Earth, and plunged into a very moderate Hot-bed, observing to water and shade them, until they have taken Root; after which time they should be removed into the open Air, and should remain abroad until the End of *October*, or the Beginning of *November*, when they should either be removed under a Hot-bed Frame, where they may be covered in frosty Weather, or else placed in the Green-house, near the Windows; for they should have as much Air as possible in mild Weather, otherwise they will produce weak Shoots, and seldom flower near so well as those which are treated hardily.

The sixth, seventh, eighth and ninth Sorts, are Natives of *America*. These are also abiding Plants, which may be propagated by sowing of their Seeds in small Pots, filled with light fresh Earth, in the Spring of the Year; these Pots should be plunged

into a moderate Hot-bed of Tanners Bark, observing to water the Earth gently when you perceive it dry; but you must not give them too much Water, lest it burst the Seeds, and cause them to rot. In about three Weeks or a Month after sowing, they will appear; when they should be frequently refreshed with Water, to promote their Growth; and when they are two Inches high, they should be shaken out of the Pots, and carefully parted; planting each Plant into a separate small Pot, filled with the same rich Earth as the Seeds were sown in. Then the Pots should be plunged again into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time they should be constantly refreshed with Water, as the Season may require; and in warm Weather the Glasses of the Hot-bed should be raised with Stones, to admit Air to the Plants in proportion to the Heat of the Weather. When the Plants have grown so as to fill these small Pots with their Roots, they should be shaken out of them, and transplanted into Pots a Size larger, and then plunged into the Hot-bed again; for they being Natives of warm Countries, must be treated after the manner of other tender Exotic Plants. In Winter they must be placed in the Bark-stove, but in Summer they should have a large Share of fresh Air; otherwise they will not flower very strong, nor will they ever produce good Seeds, if they have not Air and Moisture in warm Weather.

The tenth and seventeenth Sorts also are very tender Plants. These are propagated by Seeds, which should be treated exactly in the same manner as the former Sorts; but these are not lasting Plants, for they seldom

continue longer than two Years; the second Year they produce Flowers, and perfect their Seeds, after which they generally decay.

The eleventh, twelfth, thirteenth, fourteenth, fifteenth and sixteenth Sorts, are all annual Plants, which are hardy. The Seeds of these should be sown about the Middle of *March*, on a warm Border, where they are designed to remain; for they do not bear transplanting very well; wherefore the best Method is, to sow the Seeds in Drills, about two Feet asunder; and when the Plants are come up, they should be thinned so as to leave the Distance of about five or six Inches in the Rows. This is all the Culture which these Plants require, unless it be to keep them clear from Weeds; which should be constantly observed. In *July* these Plants will produce their Flowers, and in *September* they will perfect their Seeds, which should be carefully gathered to preserve their Species.

ANTIRRHINUM; Snap-Dragon, or Calves-Snout.

The Species omitted in the former Volumes, are;

1. ANTIRRHINUM *luteo flore*. C. B. P. Snap-Dragon with a yellow Flower.

2. ANTIRRHINUM *latifolium, pallido amplo flore*. Bocc. Mus. Broad-leav'd Snap-Dragon, with a large pale Flower.

3. ANTIRRHINUM *Lusitanicum, flore rubro elegantissimo*. Par. Bat. Portugal Snap-Dragon, with a most elegant red Flower.

4. ANTIRRHINUM *Hispanicum villosum, origani folio*. Inst. R. H. Spanish hairy Snap-Dragon, with a wild marjoram Leaf.

5. ANTIRRHINUM *Hispanicum altissimum, angustissimo folio*. Inst. R. H. Tall Spanish Snap-Dragon, with a very narrow Leaf.

6. ANTIRRHINUM *medium, flore albo patulo*. Virid. Lusit. Middle Snap-Dragon, with a white spreading Flower.

7. ANTIRRHINUM *majus saxatile, angustissimis foliis, flore purpurascente minori*. Bar. Icon. Greater Rock Snap-Dragon, with very narrow Leaves, and a lesser purple Flower.

8. ANTIRRHINUM *Creticum angusto folio, flore maximo purpureo*. Tourn. Cor. Narrow-leav'd Snap-Dragon of Crete, with the largest purple Flower.

All the Sorts of Snap-Dragons are pretty Ornaments in a Garden, and requiring very little Culture, they are the more acceptable. They are all hardy Plants, and will resist the Cold of our Winters extremely well, especially if they are planted on a dry, gravelly or sandy Soil; for when they are planted in a rich moist Soil, they will grow very luxuriant for a time, but are very subject to rot in Autumn or Winter, and are much more susceptible of Cold, than when they are in a dry, hungry, rocky Soil: So that these Plants may be placed amongst Stones, or they will grow in the Joints of old Walls, where they may be disposed so as to render some abject Parts of a Garden very agreeable; for they will continue in Flower several Months, and if the Seeds are permitted to shed, there will be a continual Supply of young Plants, without any Trouble.

Where-ever these Plants are designed to grow on Walls, or on a rocky barren Soil, the Seeds should be sown the Beginning of *March*, where they are designed to remain (for if the Plants are first raised in a better Soil, and afterward transplanted into those Places, they seldom succeed well). When the Plants are come up, they will require no other Culture but to keep them clear from Weeds,

A P

Weeds, and where they come up too thick, to pull some of them out, so as to give them Room to grow. In *July* these Plants will begin to flower, and will continue flowering till the Frost prevents them. Those which grow on Walls, will be strong, and have woody Stems, which will continue two or three Years.

APHACA ; Vetchling.

The Characters are ;

It hath a butterfly Flower, out of whose Empalement rises the Pointal, which afterwards becomes a Pod, full of roundish Seeds. To these Notes must be added, That two Leaves only grow at the Joints of the Stalks, out of whose Wings proceed the Tendrils.

We have but one Species of this Plant, (*viz.*)

APHACA. *Lob. Icon.* Yellow Vetchling.

This Plant is found wild in divers Parts of *England*, on arable Land, but is seldom preserved in Gardens. It is an annual Plant, which perishes soon after the Seeds are perfected. The surest Method to cultivate this Plant, is to sow the Seeds on a Bed of light Earth in Autumn, soon after they are ripe ; for if they are kept out of the Ground until Spring, they seldom grow ; and if some of the Plants come up at that Season, they seldom perfect their Seeds so well as those which were sown in Autumn. These Seeds should be sown where the Plants are designed to remain ; for they seldom succeed well, if they are transplanted. All the Culture these Plants require, is to keep them clear from Weeds, and to thin them where they come up too close, leaving them about ten Inches or a Foot asunder.

APIUM ; Parsley.

The Species omitted in the former Volumes, are ;

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1. *APIUM hortense latifolium. C. B. P.* Broad-leav'd Garden Parsley.

2. *APIUM Lusitanicum rotundifolium. Inst. R. H.* Round-leav'd Portugal Parsley.

3. *APIUM dulce degener, radice rapacea. Jessieu.* Turnep-rooted Celeri, commonly call'd *Celeriac*.

4. *APIUM Lusitanicum maximum, folio trilobato, flore luteolo. Boerb. Ind.* Great Portugal Parsley, with a trilobated Leaf, and a yellowish Flower.

5. *APIUM Pyrenaicum, thapsiæ facie. Inst. R. H.* Pyrenean Parsley, with the Face of the Deadly Carrot.

6. *APIUM montanum, sive petræum album. J. B. Raii.* White Mountain Parsley.

7. *APIUM montanum, sive petræum album elatius.* Taller white Mountain Parsley.

All the Sorts of Parsley are biennial Plants, seldom continuing longer than two Years, so that there should be a fresh Supply sown every Year ; for that which comes up one Year, will be fit to cut by *June* the same Season, and will continue all the following Winter and Spring fit for Use ; but in *June* it will run up to Seed, after which time it is not so good for Kitchen Use ; but by that Season the young Parsley which was sown in the Spring, will be fit to cut. The best Time to cut the common Parsley to disil, is in *July*, when it will be full in Flower.

The Method of cultivating the curled, large-rooted Parsley, and Celeri, being exhibited in the former Volumes, I shall not repeat it in this Place.

Smallage is a common Weed, by the Side of Ditches and Brooks of Water, in most Parts of *England*, so that it is seldom cultivated in Gardens ; but if any Person is willing to propagate it, the Seeds should be

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sown soon after they are ripe, on a moist Spot of Ground; and when the Plants are come up, they may be either transplanted into a moist Soil, or houghed out, and left six or eight Inches asunder, where they may remain for good. The Seed of this Plant is one of the lesser warm Seeds, and both that and the Herb are used in Medicine.

The other Sorts of Parsley are preserved in curious Botanic Gardens, but as they are Plants of no Use, they are seldom propagated in other Gardens. These may be treated as the common Sort, but the Plants growing much larger, should be left at a greater Distance.

ARISARUM ; Friars-cowl.

The Characters are ;

It agrees with the Dragon and Arum, from both which this Plant differs in having a Flower resembling a Cowl.

The Species are ;

1. ARISARUM *latifolium majus*. C. B. P. 196. Broad-leav'd Friars-Cowl.

2. ARISARUM *angustifolium*, *Dioscoridis forte*. C. B. P. Narrow-leav'd Friars-Cowl.

There are some other Species of this Plant, but those two here mentioned are what I have observed in the *English* Gardens. They are both propagated by Off-sets, which they send forth in Plenty ; these should be taken off from the old Roots about the middle of *September*, which is the proper Season for transplanting of them, their Leaves being at that time almost decayed. These Plants never rise very high, so should be placed amongst others of low Growth, otherwise they may be overborne by their neighbouring Plants, and destroyed. They should have a fresh undunged Soil, and a Situation not too much exposed to

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the Sun. They flower in *May*, but rarely produce any Seeds in our Climate.

ARISTOLOCHIA ; Birthwort.

The Species omitted in the former Volumes, are ;

1. ARISTOLOCHIA *longa vera*. C. B. P. True long-rooted Birthwort.

2. ARISTOLOCHIA *polyrrhizos, auriculatis foliis, Virginiana*. Pluk. Phyt. *Virginian Snake-root*.

3. ARISTOLOCHIA *erecta, flore atro-purpureo, foliis angustis, radice repente*. Pluk. Cat. Narrow-leav'd upright Birthwort, with creeping Roots, commonly called *Contrayerwa* in *Jamaica*.

4. ARISTOLOCHIA *folio cordiformi, flore longissimo auro-purpureo, radice repente*. Pluk. Cat. Creeping-rooted Birthwort, with long yellowish purple Flowers, and a heart-shaped Leaf.

5. ARISTOLOCHIA *scandens, foliis laurinis, fructu maximo*. Climbing Birthwort, with Laurel Leaves, and the largest Fruit.

The first Sort is used in Medicine, but as it is very rare in *England*, the Roots are brought from the Southern Parts of *France*, (where they are very common) and are sold in the Shops. This and the round rooted Sort are both tolerable hardy, and will endure the Cold of our ordinary Winters very well, in the full Ground. These Roots should be planted early in the Spring, before they begin to shoot, in a warm Situation, and should have a fresh light Soil, rather dry than moist. They should be planted six Inches deep in the Earth, that they may be less exposed to the Frost, and in Summer the Drought will not so soon affect them. They will shoot up about two Feet high, and produce their Flowers in *June* ; and in a kindly Season they will perfect

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set their Seeds in this Country. It will be very proper to have some Roots of each Sort in Pots, which may be sheltered under a Frame in very severe Frost, so that the Kinds may be preserved, if those in the full Ground should be destroyed.

The second Sort is the *Snake-root*, which is greatly used in Medicine; but these Roots are brought over from *Virginia* and *Carolina*, where there are two or three *Species* of this Plant. In *England* it is preserved as a Curiosity, in Pots filled with light fresh Earth, and requires to be sheltered from severe Cold in Winter; in Summer they must be frequently watered, and should be placed in a well-shelter'd Situation, where in a good Season they will perfect their Seeds, by which new Plants may be obtain'd. These Seeds should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they must be transplanted into Pots, and managed as hath been directed for the old Plants.

The third, fourth and fifth Sorts, are Natives of the warmest Parts of *America*; therefore must be preserved with great Care in this Climate. These may be propagated by sowing their Seeds in the Spring; the best Method to raise them, is, to sow the Seeds in Pots filled with light fresh Earth, and plunge them into a Hot-bed of Tanners Bark, observing to refresh the Earth frequently with Water, as also to raise the Glasses, when the Sun is very hot, to let the Steam of the Bed pass off; in about a Month or five Weeks after the Seeds are sown, the Plants will begin to appear; when they should be gently refreshed with Water every other Day, and a proper Share of Air admitted to them, when the Weather is warm. When the Plants are advanced to be about two Inches

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high, they should be carefully transplanted, each into a separate Pot, filled with fresh light Earth, and should then be plunged into the Hot-bed again, observing to water and shade them until they have taken Root; after which time they should have Air admitted to them every Day in proportion to the Warmth of the Season, and they must be frequently watered.

About the Beginning of *August* these Plants will have filled the Pots with their Roots, when they should be shaken carefully out of the Pots, and their Roots trimmed; then they should be planted into larger Pots filled with the same fresh Earth as before; and those which are of low Growth should be plunged into the Hot-bed again, but the taller Sorts should be plunged into the Bark-stove, especially the ninth Sort, which will rise to a great Height.

The seventh Sort is known in *Jamaica* by the Name of *Contrayerwa*, and is greatly used as an Alexipharmic, by the Inhabitants of that Island.

All these three Sorts will require to be kept in the Bark-stove, otherwise they will not thrive in this Climate.

ARUM; Wake-Robin.

The *Species* omitted in the former Volumes, are;

1. ARUM *vulgare non maculatum*. C. B. P. Common Arum, or Wake-Robin.

2. ARUM *maculatum maculis candidis*. C. B. P. Arum whose Leaves are mark'd with White.

3. ARUM *maculatum maculis nigris*. C. B. P. Arum with black spotted Leaves.

4. ARUM *venis albis, Italicum maximum*. C. B. P. Greatest Italian Arum, whose Leaves have white Veins.

5. ARUM

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5. *ARUM maximum Ægyptiacum, quod vulgo Colocasia, cauliculis nigricantibus, Zeylanica. H. L. Greatest Egyptian Arum or Colocasia, with blackish Stalks.*

The first Sort is very common under Hedges, and by the Sides of Banks, in most Parts of *England*. This is directed by the College of Physicians for medicinal Use; but the second and third Sorts, which are Varieties of the first, and are often found interspersed with it, I believe, may be either of them used indifferently. These Plants are seldom kept in Gardens, being so common in the Field, where they are usually gathered for the Markets. The best Season for taking up these Roots for Use is in *August*, after their Leaves are decayed; for when they are taken up while their Leaves are green, the Roots shrink, and lose most of their Virtue.

The fourth Sort is equally hardy with our common Sort, and will endure the Cold of our Winters very well. This is preserved in Botanic Gardens for Variety, but is seldom planted in Gardens of Pleasure. All these Plants should have a light dry Soil, and require no other Culture but to keep them clear from Weeds.

The eighth Sort is very tender: This must be preserved in the Bark-stove, and should be managed in the same manner as was directed for the *Egyptian* Sort, in the former Volumes.

ARUNDO; the Reed.

This is distinguished from the Grasses by its Magnitude, and by its having a firm Stem.

The Species omitted in the former Volumes, are;

1. *ARUNDO vulgaris palustris. J. B. 2. 485.* The common Reed.

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2. *ARUNDO Indica variegata, seu Laconica Theophrasti. Cornut. 55.* The variegated Reed.

3. *ARUNDO Indica arborea, MAMBU vel BAMBU dicta.* The Bambu Cane.

4. *ARUNDO Indica arborea, amplio pediculato folio, BAMBU SPECIES ALTERA. Raii Hist. 1316.* The other Bambu Cane.

5. *ARUNDO scriptoria atro-rubens. C. B. P.* Dark-red Reed, which is used as a Pen for writing.

6. *ARUNDO repens vel chamæcalamus. C. B. P.* Dwarf creeping Reed.

The first Sort is so very common by the Sides of Rivers, and large standing Waters, in divers Parts of *England*, that it is needless for me to say any thing of its Culture. This is cut in Autumn, when the Leaves begin to fall, and the Stems are changed brown, for making Hedges in Kitchen Gardens, and for many other Uses.

The second Sort has variegated Leaves, which causes it to be of much lower Growth, and to be more in Danger of being destroyed by Frost; therefore it should be sheltered in Winter.

The two Sorts of Bambu are of great Service to the Inhabitants of *India*, who make most of their common Utensils of the Stems of these Canes, which grow to a prodigious Magnitude in those Countries. In *England* they are esteemed as Curiosities, and require a Stove to preserve them in Winter; they should have a rich light Earth, and be frequently watered; their Roots spread very far, therefore they should have a large Share of Room. I have known one of these Plants, when put into a large Tub, and placed in a Bark-bed in the Stove, by being often watered, produce one Stem from the Root upwards of sixteen Feet

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Feet high, with many side Branches, in the Space of four Months. These two Sorts may be propagated by Offsets, which they are very apt to set off, when they are allowed a large Share of Room for their Roots to spread; but if their Roots are confined, they will not thrive; when these Plants strike their Roots thro' the Sides of their Tubs, and are permitted to run into the Bark-bed, they will thrive prodigiously. I have had one of these Plants, which was permitted to root into the Tan, which produced four Stems from the Root, each as large as a common Broom-staff, and in four Months grew to be twenty Feet high.

The sixth Sort is what the *Turks* make their writing Pens withal; this grows in a Valley near Mount *Athos*, as also on the Banks of the River *Jordan*, but there are none of the Plants in *England*. This Sort may be managed as the *Bambu*, as may also the sixth Sort, which grows in *Arabia*.

ASPARAGUS; Sperage.

The Characters are;

It hath a rosaceous Flower, consisting of six Leaves, placed orbicularly, out of whose Centre rises the Pointal, which afterwards turns to a soft Fruit, or almost globular Berry, and full of Seeds, which are commonly hard. To these Marks may be added, That the Leaves are finely cut.

The Species are;

1. ASPARAGUS *sativa*. C. B. P. 489. Garden Asparagus,
2. ASPARAGUS *sylvestris*, *tenuissimo folio*. C. B. P. 489. Wild Asparagus, with narrow Leaves.
3. ASPARAGUS *maritimus*, *crassiore folio*. C. B. P. 489. Sea Asparagus, with a thick Leaf.
4. ASPARAGUS *aculeatus*, *spinis horridus*. C. B. P. 490. Prickly Asparagus.

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5. ASPARAGUS *foliis acutis*. C. B. P. Sharp-leav'd Asparagus.

6. ASPARAGUS *aculeatus alter, tribus aut quatuor spinis ad eundem exortum*. C. B. P. Another prickly Asparagus, with three or four Spines rising at the same Place.

7. ASPARAGUS *aculeatus Africanus*. H. L. Prickly African Asparagus.

8. ASPARAGUS *aculeatus maximus sarmentosus Zeylanicus*. H. L. The largest prickly bushy Asparagus of *Ceylon*.

9. ASPARAGUS *Hispanicus, aculeis crassioribus horridus*. Inst. R. H. Spanish Asparagus, with terrible thick Prickles.

10. ASPARAGUS *Creticus fruticosus, crassioribus & brevioribus aculeis, magno fructu*. Tourn. Cor. Shrubby Asparagus of *Candy*, with thick and short Prickles, and large Fruit.

11. ASPARAGUS *orientalis, foliis gallii*. Tourn. Cor. Oriental Asparagus; with Ladies-bed-straw-leaves.

12. ASPARAGUS *Africanus scandens, myrti folio angustiore*. Hort. Piss. Climbing African Asparagus, with a narrow Myrtle-leaf.

The first Sort here mentioned is that which is generally cultivated in Gardens for the Use of the Table, whose tender Shoots are eaten in the Spring, and are much esteemed by all delicate Palates. The Culture of this Plant being exhibited at large in the former Volumes of this Dictionary, I shall not repeat it in this.

The second Sort grows wild in the Fens of *Lincolnshire*, and some other Parts of *England*; but this producing very slender Shoots, is rarely cultivated in Gardens. Tho' a Friend of mine, who had cultivated this Sort for some Years, assured me, it was sweeter, and would come earlier in the Spring, (without artificial Heat) than the Garden Kind.

All

All the other Sorts are preserved in the Gardens of those Persons who are Lovers of Botany, for Variety. These may be all propagated by Seeds, which should be sown in Pots filled with light fresh Earth early in the Spring; these Pots may be placed on a moderate Hot-bed, which will greatly forward the Vegetation of the Seed: When the Plants begin to appear, they should be inured to the open Air by Degrees, and must be kept clear from Weeds, as also in dry Weather must be frequently refreshed with Water. In the Autumn these Pots must be either removed into the Green-house, or placed under a Hot-bed Frame, where they may be protected from Frost; for as they are Natives of warm Countries, they will not endure the Cold of our Climate in Winter: The Spring following, just before the Plants begin to shoot, the Roots should be turned out of the Pots, and the Earth gently separated from them; then they should be parted, and as many of the best Roots as are intended to be preserved, should be planted each into a separate Pot filled with light fresh Earth, and then placed on a very moderate Hot-bed, covered only with Mats, just to promote their making new Roots; and when the Weather is mild, they may be exposed to the open Air. These Plants may be placed abroad during the Summer Season, but in Winter they must be protected from hard Frost, which will otherwise destroy them. The only Culture which these Sorts require, is, to shift them every Spring into fresh Earth just before they begin to shoot; and as their Roots increase in Magnitude, they should be allowed larger Pots. In Summer they must be frequently watered, but in Winter, when their Green is decayed, they should not

have too much Water, lest it rot them.

The last Sort never produces ripe Fruit in this Country, but it increases plentifully by Off-sets, which should be taken off in the Spring, before they shoot, otherwise they do not succeed so well. The Roots of this Sort are very subject to rot, where they have too much Wet in Winter.

ASPERUGO; Small wild Bugloss.

The Characters are;

It hath a Flower consisting of one Leaf, which is shaped like a Funnel, and cut into several Segments; out of whose Empalement rises the Pointal, fixed in the Bottom of the Flower, surrounded by four Embryo's, which afterwards become so many oblong Seeds, which ripen in the Empalement, that is much enlarged, whose Parts are then so closely contracted, that they adhere and cling together.

We have but one Sort of this Plant, which is,

ASPERUGO vulgaris. *Inst. R. H.* Small wild Bugloss, great Goose-grass, or German Madwort.

This is an annual Plant, which is found wild in some Parts of England, as near Newmarket, at Boxley in Suffolk, and in Holy Island. It is preserved in the Botanic Gardens for Variety; it may be easily propagated by Seeds, which should be sown in Autumn; for if the Seeds are kept out of the Ground till Spring, they do not succeed so well. When the Plants come up, they require no other Culture but to keep them clear from Weeds, and in May they will flower; in June their Seeds will be perfected, which if suffered to scatter, will grow again in Autumn; so that when this Plant is once brought into a Garden, it will maintain itself, provided it be allowed a Place.

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ASPHODELUS ; King's-spear.

The *Species* omitted in the former Volumes, are ;

1. ASPHODELUS *albus ramosus minor, seu ramosus alter.* H. R. Par. Small white branched Asphodel, or King's-spear.

2. ASPHODELUS *purpureascens, foliis maculatis.* C. B. P. Purplish Asphodel, with spotted Leaves.

3. ASPHODELUS *foliis compressis asperis, caule patulo.* Inst. R. H. Asphodel with rough compressed Leaves, and a spreading Stalk.

4. ASPHODELUS *Africanus angustifolius luteus minor.* Inst. R. H. Small yellow African Asphodel, with narrow Leaves.

5. ASPHODELUS *spiralis luteus Italicus, flore magno.* H. R. Par. Yellow spiral Italian Asphodel, with a large Flower.

6. ASPHODELUS *albus minimus.* C. B. P. Smallest white Asphodel.

7. ASPHODELUS *foliis fistulosis.* C. B. P. Asphodel with fistulous Leaves.

8. ASPHODELUS *Creticus luteus serotinus patulus, folio aspero.* Tourn. Cor. Late yellow spreading Asphodel of Candy, with a rough Leaf.

All the Sorts of Asphodel are very pretty Ornaments for a Flower-garden, and requiring very little Trouble to cultivate them, they are the more acceptable. They may be all propagated by Seeds, which should be sown soon after they are ripe, on a warm Border of light fresh Earth ; in the Spring the Plants will appear, when you should carefully clear them from Weeds, and in dry Weather they must be frequently watered ; if this be duly observed, the Plants will have acquired Strength enough to be transplanted by the *Michaelmas* following ; at which time you must prepare a Bed of fresh Earth in the Flower-nursery,

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into which you should plant the Roots, at about six Inches Distance every way ; observing to plant them so low, as that the Top of the Roots may be three or four Inches under the Surface of the Bed ; in this Bed they may remain one Year, during which time they should be frequently refreshed with Water in dry Weather, and must be kept very clear from Weeds. In this time the Roots will have acquired Strength enough to produce Flowers the following Year ; therefore should at *Michaelmas*, when their Leaves are decayed, be carefully taken up, and transplanted into the Flower-garden, observing to place them in the middle of the Borders, amongst other hardy Kinds of Flowers, where being properly intermixed, they will make an agreeable Variety, and continue a long time in Flower.

These Plants may also be propagated by parting of their Roots ; but this must not be too often repeated, lest it weaken the Roots, and prevent their Flowering so strong as they otherwise would do. Once in three Years will be often enough to transplant the Roots, at which times you may separate those which are grown large, so as to make two or three Roots of each ; but do not part them too small, for that will so weaken them, as to prevent their Flowering the following Summer. The best Time to transplant these Roots is at *Michaelmas*, just when their Leaves begin to decay.

ASTER ; Starwort.

The *Species* omitted in the former Volumes, are ;

1. ASTER *Novæ Angliæ, linariæ folio, chamameli flore.* Par. Bat. New-England Starwort, with toad-flax Leaves, and Flowers like those of Chamomile.

2. ASTER

2. *ASTER Americanus, belviderae foliis, floribus ex caeruleo albicantibus, spicis praelongis. Pluk. Phyt. tab. 78. f. 5.* American Starwort, with Leaves like the Belvidere, and long Spikes of blueish white Flowers.

3. *ASTER serotinus ramosus alter, flore purpurascente. H. R. Par.* Another late-branch'd Starwort, with a purplish Flower.

4. *ASTER latifolius, tripolii flore. H. R. Par.* Broad-leav'd Starwort, with a Flower of Tripolium.

5. *ASTER tripolii flore, angustissimo et tenuissimo folio. Flor. Bat.* Starwort, with a tripolium Flower, and very narrow slender Leaves.

6. *ASTER Canadensis subhirsutus, salicis folio, serotinus, flore caeruleo. Inst. R. H.* Late hairy Canady Starwort, with willow Leaves, and a blue Flower.

7. *ASTER Atticus caeruleus minor. Inst. R. H.* Small blue Attic Starwort.

8. *ASTER hirsutus Austriacus, caeruleo magno flore, foliis subrotundis. C. B. P.* Hairy Austrian Starwort, with a large blue Flower, and roundish Leaves.

9. *ASTER montanus caeruleus, magno flore, foliis oblongis. C. B. P.* Blue mountain Starwort, with a large Flower, and oblong Leaves.

10. *ASTER Alpinus, flore purpurascente. Raii Hist.* Alpine Starwort, with a purplish Flower.

11. *ASTER Atticus Alpinus alter. C. B. P.* Another Attic Starwort of the Alps.

12. *ASTER Atticus caeruleus major. Inst. R. H.* Greater blue Attic Starwort.

13. *ASTER maritimus palustris caeruleus, salicis folio. Inst. R. H.* Marsh or Sea Starwort, with willow Leaves, commonly called Tripolium.

14. *ASTER Canadensis, foliis imis amplioribus cordatis & serratis. D.*

Sarrazin. Canady Starwort, whose Under-leaves are broad, heart-shaped, and ferrated.

15. *ASTER virgae aureae latifoliae folio subhirsuto, floribus fere umbellatis. D. Sarrazin.* Hairy Starwort, with broad Golden-rod Leaves, and Flowers growing almost in an Umbel.

16. *ASTER caeruleus ex PROVINCIA MARIANA, quasi perfoliatus floribus sparsis spicatis. Pluk. Mantif.* Blue Starwort from Maryland, whose Leaves almost surround the Stalk, and small Flowers growing in Spikes.

17. *ASTER annuus, caule villosa virescente, eryngii folio, flore maximo albo.* Annual Starwort from China, with hairy greenish Stalks, eryngo Leaves, and a large white Flower.

18. *ASTER Americanus, foliis pinnatis & serratis, floribus aurantiis. Houst.* American Starwort, with winged ferrated Leaves, and orange-colour'd Flowers.

19. *ASTER Americanus palustris, salicis folio serrato, floribus exiguis albidis. Houst.* Marsh American Starwort, with a ferrated willow Leaf, and small white Flowers.

20. *ASTER Americanus procumbens, bellidis minoris facie. Houst.* Trailing American Starwort, with the Face of the lesser Daisy.

21. *ASTER Africanus frutescens, lavendulae folio, flore purpureo. Hort. Amst.* Shrubby African Starwort, with a lavender Leaf, and a purple Flower.

22. *ASTER Africanus ramosus, hyssopi foliis, floribus caeruleis. Olden. Inst. R. H.* African branched Starwort, with hyssop Leaves, and blue Flowers.

23. *ASTER Americanus frutescens, satureiae foliis scabris, floribus amplis saturate violaceis. Pluk. Alm.* Shrubby American Starwort, with rough

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rough Savory-leaves, and large violet-coloured Flowers.

The fifteen Sorts first mentioned, are all of them very hardy Plants, which will endure the severest Cold of our Climate in the full Ground. These are propagated by parting of their Roots early in the Spring, before they begin to shoot; for as many of the Sorts do not flower till late in the Autumn, it will not be proper to transplant them till after their Stems decay, which is seldom long before *Christmas*; therefore it is better to be done in *February*. But having in the former Volumes given Directions for cultivating all these hardy Kinds, I shall not repeat it in this Place, but proceed to give Directions for cultivating the other Sorts.

The seventeenth Sort is a Variety of the *China* Starwort, which accidentally rose from the same Seeds. This only differs from the former in the Colour of its Stalks and Flowers, which are white, and not near so beautiful as the former; but for Variety a few of them may have a Place in the Flower-garden.

This Plant is commonly called *Margarit*, by the *French* Gardeners.

The eighteenth, nineteenth and twentieth Sorts, were discovered by the late Dr. *William Houstoun*, near *Vera Cruz* in the *Spanish West-Indies*. The eighteenth and twentieth grow plentifully on the sandy Ground about *Old Vera Cruz*; and the nineteenth, in watery Places near the Sea. These are all of them annual Plants, which may be propagated by sowing their Seeds in Pots filled with light fresh Earth, early in the Spring; and then plunge the Pots into a Hot-bed of Tanners Bark, observing to water them frequently, as the Earth in the Pots shall require it; and in very hot Weather you should shade

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the Glasses of the Hot-bed, during the Heat of the Day, to prevent the Earth from drying too fast. When the Plants are come up, they must be frequently refreshed with Water, and the Glasses of the Hot-bed should be raised with Stones in the Heat of the Day, to admit Air to them, otherwise they will draw up very weak. When they are about an Inch high, they should be carefully transplanted, each into a separate Pot, filled with light fresh Earth, and then plunged into the Hot-bed again, observing to shade the Glasses until they have taken new Root; after which time they should have fresh Air admitted to them, by raising of the Glasses every Day, when the Weather will permit; you must also constantly supply them with Water, as you find the Earth in the Pots dried. When the Plants have filled these Pots with their Roots, you must shift them carefully into Pots of a larger Size; and then plunge them into the Bark-bed in the Stove, where they will flower in *August*, and their Seeds will be perfected in *September*; after which the Plants decay.

The twenty-first, twenty-second and twenty-third Sorts, are abiding Plants, which grow to the Height of six or eight Feet, and become shrubby. These may be propagated by Cuttings, which should be taken off in *June*, and planted into Pots filled with light fresh Earth, and plunged into a moderate Hot-bed, observing to water and shade them until they have taken Root; after which time they should be inured to bear the open Air by degrees. Toward the End of *July*, they should be taken out of the Hot-bed, and placed amongst other Exotic Plants, in a Situation where they may be defended from cold Winds. In this Place they may remain

remain until the Beginning of *October*, when they should be removed into the Green-house, observing to place them where they may enjoy a large Share of Air in mild Weather; otherwise their Shoots will become weak, and they will not produce their Flowers strong, where their Shoots are too much drawn. These Plants must be removed out of the Green-house in the Spring, at the time when Orange-trees are taken out, and should be housed again about the same time as those are. In Winter they should be frequently watered, but it must not be given them in large Quantities at that Season. In Summer they must be plentifully watered in dry Weather, which will cause them to flower very strong.

These produce their Flowers in Autumn, and continue in Beauty a long time; during which Season they afford an agreeable Prospect, and greatly add to the Variety, amongst other Exotic Plants.

ASTEROIDES; Bastard Starwort.

The Characters are;

It hath a compound radiated Flower, whose Disk is composed of many Florets, which are hermaphrodite, and of Semi-florets, which are female, and rest upon the Embryo's, which are all included in a scaly Empalement. These Embryo's afterwards become Seed, for the most part oblong.

The Species are;

1. ASTEROIDES *Alpina, salicis folio.* Tourn. Cor. Bastard Starwort of the Alps, with a willow Leaf.

2. ASTEROIDES *orientalis, petasitidis folio, flore maximo.* Tourn. Cor. Oriental Bastard Starwort, with a butter-bur Leaf, and a large Flower.

3. ASTEROIDES *Americana minor annua.* Vaill. Lesser American Bastard annual Starwort.

The first of these Plants is pretty common in the *English* Gardens. This is very hardy, which is propagated by parting its Roots (for it seldom produces good Seed in this Country); the best time to part the Roots is in *October*, about which time its Leaves decay. For if it be deferred till the Spring, and the following Season should prove dry, this will not flower so strong as those which were planted in Autumn, though it should be constantly supplied with Water. This will thrive in almost any Soil or Situation, and continues to flower from *June* to *September*, which renders it worthy of a Place in every good Garden. This Plant is proper for large Borders, or to place under Groves of Trees, where if it be not too much shaded by them, it will thrive very well, and add to the Variety. The Flowers are of a bright yellow Colour, and their Stems are about two Feet high, a great Number of which are produced from each Root, if they have sufficient Strength.

The second Sort was discovered by Dr. *Tournesfort* in the *Levant*, and is at present rarely to be found in *England*. This may be propagated as the former Sort, but must have a warmer Situation; nor will it grow under the Drip of Trees. These Plants should not be transplanted oftener than every other Year, for when they are often parted and transplanted, they do not flower so well, nor make so large an Increase.

The third Sort is an annual Plant, which must be raised on a Hot-bed, and planted into Pots filled with light rich Earth, and brought forward on another Hot-bed, observing not to draw them up too weak; and in *June* they should be inured to bear the open Air by degrees, into which they should be removed toward

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toward the End of the Month, and placed in a warm Situation, where they will flower in *July*, and their Seed will be perfected in *September*, soon after which time the Plants will decay.

ASTRAGALOIDES; Bastard Milk-Vetch.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterwards becomes a Pod, shaped almost like a Boat, and full of kidney-shaped Seeds.

We have but one Sort of this Plant, which is;

ASTRAGALOIDES Lusitana. Inst. R. H. Portugal Bastard Milk-Vetch.

This Plant is only propagated by Seeds, which should be sown in the Place where it is to remain; it has a long tap Root, which runs deep into the Ground, and renders it very difficult to transplant, so as to thrive well, especially if it be not done while the Plants are young; for I have seen Roots of this Plant, which have been four Feet long, and as large as a Man's Wrist. The Seeds of this Plant should be sown in *March*, on a Border of light fresh Earth; and when the Plants are come up, they should be thinned, where they grow too close to each other, and must be carefully weeded; for if they are not kept very clean while they are young, the Weeds will soon over-bear and destroy them. They will require no other Culture, but only to dig about their Roots every Spring, just before they begin to shoot, being careful not to bruise or injure their Roots, and to make the Earth loose about them. In Summer they must be kept clear from Weeds; with this Management the Plants will thrive very well, but they will not flower until the third Year after sowing, but will continue

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to flower every Year after. The Stems of this Plant usually rise three Feet high, the Flowers are produced in a long Spike, which are shaped like those of the Lupine, and come out on Branches, from the Wings of the Leaves, all the way up the Stalks. The Flowers appear first white, before they are fully blown out; afterwards they are of a dark yellow Colour, and continue near a Month before they fall off. This Plant rarely produces good Seeds in *England*, so that they must be procured from abroad.

ASTRAGALUS; Milk-Vetch.

The Characters are;

It hath a papilionaceous Flower, consisting of the Standard, the Keel, and the Wings. Out of the Flower-cup arises the Pointal, covered with a Sheath, which afterward becomes a bicapsular Pod, which is filled with kidney-shaped Seeds; to which Notes may be added, That the Leaves grow by Pairs along the middle Rib, with an odd one at the End.

The Species are;

1. *ASTRAGALUS luteus perennis procumbens vulgaris sive sylvestris. Mor. Hist.* Wild Liquorice or Liquorice-Vetch.

2. *ASTRAGALUS luteus annuus Montpeliacus procumbens. Mor. Hist.* Yellow annual trailing Milk-Vetch of *Montpelier*.

3. *ASTRAGALUS luteus perennis, siliqua gemella rotunda vesicam referente. Mor.* Yellow perennial Milk-Vetch, with a round Pod resembling a Bladder.

4. *ASTRAGALUS annuus maritimus procumbens latifolius, floribus pediculo insidentibus. Tourn.* Annual maritime trailing Milk-Vetch, with broad Leaves, and the Flowers sitting on Pedicles.

5. *ASTRAGALUS annuus angustifolius, flosculis pediculis oblongis insidentibus.*

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identibus. Tourn. Narrow-leav'd annual Milk-Vetch, whose Flowers stand on long Foot-stalks.

6. *ASTRAGALUS annuus angustifolius, flosculis subcaeruleis, cauliculis adhaerentibus. Tourn.* Narrow-leav'd annual Milk-Vetch, with blueish Flowers, adhering to the Stalks.

7. *ASTRAGALUS annuus procumbens, floribus glomeratis purpureis. Boerb. Ind.* Annual trailing Milk-Vetch, with purple Flowers growing in Clusters.

8. *ASTRAGALUS Alpinus procerior alopecuroides. Tourn.* Taller Fox-tail Milk-Vetch of the Alps.

9. *ASTRAGALUS pumilis, siliqua epiglottidis forma. Tourn.* Dwarf Milk-Vetch, with a Pod shaped like the Epiglottis.

10. *ASTRAGALUS montanus purpureus Anglicus. Tourn.* English purple Milk-Vetch of the Mountains.

11. *ASTRAGALUS Alpinus, tragacanthæ folio, vesicarius. Tourn.* Bladder Milk-Vetch of the Alps, with a goat's-thorn Leaf.

12. *ASTRAGALUS Alpinus, tragacanthæ folio, ramosus, flore caeruleo glomerato. Tourn.* Branched Milk-Vetch of the Alps, with a goat's-thorn Leaf, and blue glomerated Flowers.

13. *ASTRAGALUS orientalis altissimus, galegae foliis amplioribus, flore parvo flavescente. Tourn. Cor.* Tallest Eastern Milk-Vetch, with ample goat's-rue Leaves, and a small yellowish Flower.

14. *ASTRAGALUS orientalis altissimus, fraxini folio, flore è viridi flavescente. Tourn. Cor.* Tallest Eastern Milk-Vetch, with an Ash-leaf, and a greenish yellow Flower.

15. *ASTRAGALUS orientalis maximus incanus erectus, caule ab imo ad summum florido. Tourn. Cor.* Greatest hoary upright Milk-Vetch, with a

Flower growing from the Bottom to the Top of the Stalk.

16. *ASTRAGALUS Canadensis, flore viridi flavescente. Acad. Reg. Scien.* Milk-Vetch of Canada, with a greenish yellow Flower.

The first Sort is very common in divers Parts of *England*, and is seldom preserved in Gardens. This dies to the Root every Winter, and rises again the following Spring. It flowers in *June*, and the Seeds are ripe in *August*. This may be propagated by sowing the Seeds in the Spring, upon almost any Soil, or in any Situation, and requires no farther Care but to keep it clear from Weeds.

The tenth Sort grows wild in several Parts of *England*, but it is not so common as the former; but may be propagated in the same manner as that Sort.

The second, fourth, fifth, sixth and seventh Sorts, are annual Plants. These may be propagated by sowing of their Seeds in *March* upon a Bed of light fresh Earth, in an open Situation; and when they are come up, they should be thinned, leaving them about a Foot asunder; after this there will be no other Trouble but to keep them clear from Weeds. These will produce their Flowers in Summer, and in Autumn their Seeds will be perfected.

The other Sorts are all abiding Plants, but must be propagated by sowing of their Seeds towards the latter End of *March*, on a Bed of fresh light Earth, observing not to bury the Seeds too deep, lest they rot; and when they are come up, they should be thinned, leaving them about six Inches asunder; and during the Summer following you should constantly keep them clear from Weeds. In *October* you may transplant them into the Borders where

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where they are to remain; in doing of which, you should be careful to dig to the Bottom of their Roots; for most of them send forth long tap Roots, which go deep into the Earth, and, if cut or broken, rarely overcome it. Many of these Plants grow very tall, and should be allowed a great Share of room. The fifteenth Sort is a beautiful Plant; it grows about four Feet high, and produces Flowers from the Bottom to the Top of the Stems; so that it makes a fine Appearance in a large Border. The sixteenth Sort is somewhat tender, and is often destroyed in severe Frost; but in mild Winters it will stand abroad very well.

ASTRANTIA; Masterwort.

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves; the Apices are for the most part reflexed, and are placed orbicularly on the Flower-cup; this afterwards becomes a Fruit, composed of two Seeds, each of which is covered with a furrowed Husk: to these Notes must be added, The Flowers are collected into a Head, surrounded with a Circle of Leaves.

The Species are;

1. *ASTRANTIA major, corona floris purpurascens.* Tourn. Black Masterwort, with purplish Flowers.

2. *ASTRANTIA major, corona floris candida.* Tourn. Greater Masterwort, with white Flowers.

These Plants are both very hardy: they may be propagated either by sowing of their Seeds, or parting their Roots. If they are propagated from Seeds, they should be sown early in the Spring, or in Autumn, soon after the Seeds are ripe, on a shady Border; and when the Plants are come up, they should be carefully weeded; and where they are too close, some of the Plants should be

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drawn out, to allow room for the others to grow until *Michaelmas*, when they should be transplanted where they are to remain; which should always be in a moist Soil, and a shady Situation. The Distance these Plants should be placed is two Feet, for their Roots will spread to a considerable Width, if they are permitted to remain some Years in the same Place. They require no other Culture, but to keep them clear from Weeds, and every third or fourth Year taken up at *Michaelmas*, and their Roots parted and planted again. They are seldom preserved but in Botanic Gardens, there being no great Beauty in their Flowers, nor are they used in Medicine at present; though by some Persons they have been called Black Hellebore, and I believe have been used for that.

ATRIPLEX; Orrach.

The Characters are;

It hath no Leaves to the Flower, but consists of many Stamina, which arise from a five-leaved Empalement; the Pointal afterwards becomes the Seed, which is flat and orbicular, and is inclosed in the Empalement, which becomes a foliaceous Capsule, in which are included two Sorts of Seeds.

The Species are;

1. *ATRIPLEX hortensis alba, five pallide virens.* C. B. P. Garden Orrach, of a pale green Colour.

2. *ATRIPLEX hortensis nigricans.* C. B. P. Dark green Garden Orrach.

3. *ATRIPLEX hortensis rubra.* C. B. P. Red Garden Orrach.

4. *ATRIPLEX latifolia, five halimus fruticosus.* Mor. Hist. Shrubby broad-leav'd Orrach, commonly called Sea-purslane-tree.

5. *ATRIPLEX maritima fruticosa, Halimus & Portulaca marina dicta, angustifolia.* Raii Syn. Shrubby Sea

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Orrach,

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Orrach, commonly called Sea-purflane, with a narrow Leaf.

6. *ATRIPLEX maritima laciniata*. C. B. P. Sea Orrach, with jagged Leaves.

7. *ATRIPLEX angusta oblongo folio*. C. B. P. Long narrow-leav'd Orrach.

8. *ATRIPLEX angustissimo & longissimo folio*. H. L. Orrach, with very long narrow Leaves.

9. *ATRIPLEX sylvestris, fructu compresso roseo & stellato*. C. B. P. Wild Orrach, with a compressed starry and rose-shaped Fruit.

10. *ATRIPLEX Gretica maritima erecta, folio triangulari*. Tourn. Cor. Upright Sea Candy Orrach, with a triangular Leaf.

11. *ATRIPLEX Græca fruticosa humifusa, balimi folio*. Tourn. Cor. Dwarf shrubby Orrach, with a sea-purflane Leaf.

12. *ATRIPLEX orientalis frutescens, folio amplissimo argenteo*. Tourn. Cor. Shrubby oriental Orrach, with a large silver-coloured Leaf.

13. *ATRIPLEX orientalis, frutex aculeatus, flore pulchro*. Tourn. Cor. Shrubby prickly oriental Orrach, with a fair Flower.

The first of these Plants was formerly cultivated in the Kitchen-Gardens, as a culinary Herb, being used as Spinage, and is by some Persons preferred to it, though in general it is not esteemed amongst the *English*; but the *French* now cultivate this Plant for Use.

The second and third Sorts are believed to be Varieties of the first, for they differ in nothing from that, but in the Colour of their Stalks and Leaves; however, this Difference is not accidental, for I have several Years cultivated all the three Sorts in the same Soil, and they have always retained their Difference from Seeds, and have not interchanged, as most Varieties generally do.

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These Plants are annual, therefore must be sown for Use early in the Spring, or at *Michaelmas*, soon after the Seeds are ripe; at which time they generally succeed better than when they are sown in the Spring, and will be fit for Use at least a Month earlier in the Spring. They require no other Culture, but to hough them when they are about an Inch high, to cut them down where they are too thick, leaving them about four Inches asunder, and to cut down all the Weeds. This must be done in dry Weather, otherwise the Weeds will take Root again, and render your Work of no Use. When they are grown about four Inches high, it will be proper to hough them a second time, in order to clear them from Weeds; and if you observe the Plants are left too close in any Part, you must then cut them out. If this be well performed, and in dry Weather, the Ground will remain clean until the Plant is fit for Use. Where they are sown on a rich Soil, and allowed a good Distance, the Leaves will be very large, in which the Goodness of the Herb consists. This must be eaten while it is young, for when the Stalks become tough, it is good for nothing. Some few Plants of each Kind may be permitted to stand for Seed, to preserve their Kinds, which will ripen in *August*, and may then be cut and laid on a Cloth to dry, after which the Seeds may be beaten out, and put up for Use. The first Sort is ordered by the College of Physicians for medicinal Use.

The fourth Sort was formerly cultivated in Gardens as a Shrub, and by some Persons they were formed into Hedges, and constantly shear'd to keep them thick; but I do not approve of this Plant for such Purposes, on many accounts; for it is

too vigorous; the Shoots, in one Month, at the growing Season of the Year, will be, two Feet long, provided they have a good Soil, so that a Hedge of this Plant cannot be kept in tolerable Order, nor will it ever form a thick one. But a worse Inconvenience attends this Plant, for in very hard Winters it is often destroyed, as also in very dry Summers many of the Plants will decay, whereby there will become large Gaps in the Hedge.

But although this Plant be not proper for Hedges, yet it may have a Place in Wilderness Quarters, where it will serve to thicken, and the silver-coloured Leaves will add to the Variety, amongst other Shrubs of the same Growth. This will grow eight or ten Feet high, and if suffered to grow wild without pruning, will spread several Feet in Compass, and will sometimes produce Flowers.

They may be propagated by Cuttings, which may be planted in any of the Summer Months, on a shady Border, where if duly watered, they will soon take Root, and will be fit to transplant the *Michaclmas* following, when they should be planted where they are to remain; for they do not succeed well in transplanting, when they are grown pretty large and woody.

The fifth Sort grows wild in divers Parts of *England* on the Sea-side, from whence the Plants may be procured; or it may be propagated by Cuttings, in the same manner as the former Sort. This is a low Under-shrub, seldom rising above two Feet and an half, or at most three Feet high; but becomes very bushy. The Leaves of this Kind are narrow, and of a whitish Colour, but are not so white as those of the former. This may have a Place amongst other low Shrubs; and if planted on a poor

gravelly Soil, will abide several Years, and make a pretty Diversity.

The sixth, seventh, eighth and ninth Sorts, grow wild in *England* and *Holland*, and are seldom preserved but in Botanic Gardens, for the sake of Variety. These are propagated by Seeds, which may be sown soon after they are ripe, when they will succeed much better than if they are sown in the Spring. When they are come up, they should be thinned, so as to leave them four or five Inches distant, and kept clear from Weeds, which is all the Culture they require.

The tenth, eleventh, twelfth and thirteenth Sorts, were discovered by Dr. *Tournefort* in the *Levant*, who sent their Seeds to the Royal Garden at *Paris*, from whence they have been communicated to several Gardens in *Holland* and *England*. The tenth Sort may be propagated by Seeds as the four former Sorts, but must have a warmer Situation, otherwise it will not perfect Seeds in this Country.

The other three Sorts may be propagated by Seeds, or by Cuttings, planted on a shady Border, as was directed for the fourth and fifth Sorts. These must be planted in Pots, and sheltered in Winter under a Garden-frame, where they may have as much free Air as possible in mild Weather; but in hard Frost they must be sheltered, otherwise it will destroy them. Some of these may be planted on a warm Border, in a poor gravelly Soil, where they will endure the Cold of our ordinary Winters very well, and will make a pretty Variety amongst Plants of the same Growth. The eleventh Sort will seldom rise above two Feet high, but the twelfth and thirteenth Sorts will grow to be six or seven Feet high.

AVENA; Oats.

The Characters are;

It is of the grass-leav'd Tribe; the Flowers have no Petals, and are disposed in a loose Panicle; the Grain is eatable.

The Species are;

1. AVENA vulgaris seu alba. C. B. P. Common or white Oats.
2. AVENA nigra. C. B. P. Black Oats.
3. AVENA nuda. C. B. P. Naked Oats.

The first Sort here mentioned is the most common in *England*; the second Sort being much less esteemed, the white being the heavier Grain, and makes whiter Meal. The third Sort is less common than either of the former, especially in the Southern Parts of *England*; but in the North of *England*, *Scotland* and *Wales*, it is cultivated in Plenty. This Sort is esteemed, because the Grain threshes clean out of the Husk, and need not be carried to the Mill to be made into Oatmeal or Grist. An Acre of Ground doth not yield so many Bushels of these, as of the common Oats, by reason the Grain is small and naked, and goes near in Measure; but what is wanting in that, is supplied in Value.

Oats are a very profitable Grain, and absolutely necessary, being the principal Grain which Horses love; and are esteemed the most wholesome Food for those Cattle, being sweet, and of an opening Nature; other Grains being apt to bind, which is injurious to labouring Horses. But if you feed them with this Grain, soon after they are housed, before they have sweat in the Mow, or are otherwise dried, it is as bad on the other hand; for they are then too laxative.

This Grain is a great Improvement to many Estates in the North

of *England*, *Scotland* and *Wales*; for it will thrive on cold barren Soils, which will produce no other Sort of Grain; it will also thrive on the hottest Land. In short, there is no Soil too rich or too poor, too hot or too cold for it. And in wet Harvests, when other Grain is spoiled, this will receive little or no Damage; the Straw and Husks being of so dry a Nature, that if they are housed wet, they will not heat in the Mow, or become mouldy as other Grain usually do; therefore it is of great Advantage in the Northern Parts of *England*, and in *Scotland*, where their Harvest is generally late, and the Autumns wet.

The Meal of this Grain makes tolerable good Bread, and is the common Food of the Country People in the North. In the South it is esteemed for Pottage and other Messes, and in some Places they make Beer with this Grain.

The best time for sowing of Oats is in *February* or *March*, according as the Season is early or late; and sometimes I have known it sown in *April*, and has been early ripe. The manner of preparing the Ground, as also of sowing the Grain, being the same as for other Corn, I shall not mention it in this Place.

AVENUE.

The old Method of planting Avenues, with regular Rows of Trees, is what has been generally practised till of late Years, since the old Manner of laying out Gardens being with good Reason disused, they have also introduced a more magnificent Method of planting Avenues; which is to plant the Trees in Clumps, or Platoons, making the Opening much wider than before; and to place the Clumps of Trees at about three hundred Feet Distance from each other. In each of these Clumps, should

should be planted seven or nine Trees, according to the Fancy of the Owner, or the Person who designs the Plantation; in doing of this, there must be Care taken to range the Trees on the Inside of the Avenue, that when a Person is at one End, the whole may appear in a strait Line. But this is only to be practised where the Avenue is of a tolerable Length; for in short Walks it will not appear soightly as even Rows of Trees. In large Parks this Method of planting Trees in Clumps has a very good Effect; for as a Person rides through the Avenue, the Openings between the Trees to the Turf where the Deer are feeding, are much more agreeable, than in passing between strait Rows of Trees. They should be planted about thirty Feet asunder in the Clumps, and a little Ditch thrown up round each of them, to prevent the Deer from coming to bark them.

To the Article of AURANTIUM add;

These Trees being new potted or tubbed every Year, those Years in which they are not shifted, you must in *April* observe to take out as much of the old Earth from the Tops of the Pots and Tubs, and also round the Sides of them, as possible, without injuring the Roots of the Trees, and fill them up with fresh Earth. You must also wash and clean their Stems and Leaves from Filth, which will greatly strengthen their Flowering, and cause them to shoot vigorously the following Summer.

In the Management of Orange-trees which are in good Health, the chief Care should be to supply them with Water duly, and not (as is sometimes practised) starve them in Winter, whereby their Fibres are dried, and become mouldy, to the great

Prejudice of the Trees; nor to give them Water in too great Abundance: but rather let their Watering be frequent, and given in moderate Quantities. You must also observe, that the Water have free Passage to drain off; for if it be detained in the Tubs or Pots, it will rot the tender Fibres of the Trees. During the Winter Season they must have a large Share of Air, when the Weather is favourable; for nothing is more injurious to these Trees, than stifling of them; nor should they be placed too near each other in the Green-house, but set at such Distance, that their Branches may be clear of each other, and that the Air may circulate freely round their Heads. In Summer they should be placed where the Winds are not violent, and have the Morning and Evening Sun; for if they are too much exposed to the Mid-day Sun, they will not thrive. The best Situation for them, is near some Plantation of Trees, which will break the Force of the Winds, and screen them from the violent Heat of the Sun. In such a Situation they may remain until the Beginning of *October*, or later, according as the Season proves favourable; for if they are carried into the Green-house early, and the Autumn should prove warm, it will occasion the Trees to make fresh Shoots, which will be weak and tender, and liable to perish in Winter, and sometimes it will occasion their Flowering in Winter, which greatly weakens the Trees.

The Shaddock and Citron are much tenderer than either the Orange or Lemon, and should be set into the Green-house sooner, and have a warmer Situation in Winter, otherwise their Fruit will all drop off.

The best Compost for Orange-trees, is, two thirds of fresh Earth from a

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good Pasture, which should not be too light, nor over stiff, but rather a hazel Loam; this should be taken about ten Inches deep with the Sward, which should be mixed with the Earth to rot, and one third part of Neats-dung; these should be mixed together, at least twelve Months before it is used, observing to turn it over every Month, to mix it well, and to rot the Sward; this will also break the Clods, and cause the Mould to be finer. Before you make use of this Earth, you should pass it through a rough Screen, to separate the great Stones, and the Roots of the Sward therefrom; but by no means sift the Earth too fine, for this is very prejudicial to most Plants, but particularly to Orange-trees.

To the Article AZEDARACH, add;

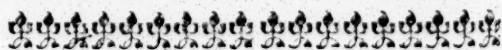
2. AZEDARACH *sempervirens* & *florens*. Tourn. The Bead-tree which is always green and flowering.

This Plant is at present very rare in England, being in very few Gardens; and is much tenderer than the common Sort: it is propagated by Seeds, which must be sown on a Hot-bed in the Spring; and when the Plants are come up two or three Inches high, they must be transplanted, each into a small half-penny Pot, filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which they must have Air and Water in proportion to the Warmth of the Season, or the Bed in which they stand. In this Bed they may remain until Michaelmas, when the Pots must be removed into the Stove, where they must have a moderate Share of Heat, and be often refreshed with Water. The Spring following they must be removed into larger Pots, and if they are plunged

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into a moderate Hot-bed to facilitate their taking Root, it will greatly promote their Growth; but they should not remain too long in this Bed, nor be too much drawn, which will weaken them. As the Summer advances, so they should be inured by Degrees to bear the open Air, into which they should be removed in June, observing to place them where they may be screened from strong Winds, and not too much exposed to the Mid-day Sun. In this Situation they may remain till Michaelmas, when they must be removed into the Stove, and managed during the Winter Season, as was directed for the foregoing Winter; and as they grow large, they will be more hardy, when a small Share of Heat will preserve them in Winter, and in Summer they may be exposed in a well sheltered Situation. With this Management they will produce Flowers extremely well, and sometimes they will ripen their Fruit in Europe.

The common Sort has flowered three or four Years successively in the Physic-Garden, and the last Season there was a good Quantity of Fruit on several Plants, but they were not perfected; but as these are young, they cannot nourish the Fruit so well as those which are full grown, and I doubt not but in a few Years, they may produce ripe Fruit in England.



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BANISTERA. *Houft.*

This was so called from a famous Botanist, who lost his Life in the Search of Plants in Virginia; where.

wherefore we have no *English* Name for the Plant.

The *Characters* are ;

It hath a papilionaceous Flower, which is succeeded by one naked Seed, whose outer Membrane is extended into a winged Leaf, after the manner of the Maple Seed.

The *Species* are ;

1. *BANISTERIA Americana scandens, foliis laurinis. Houst.* Climbing Banistera, with laurel Leaves.

2. *BANISTERIA Americana scandens, folio subrotundo, flore ex aureo coccineo. Houst.* Climbing American Banistera, with a roundish Leaf, and a Flower from gold to a scarlet Colour.

3. *BANISTERIA Americana scandens, foliis citri, flore caeruleo spicato. Houst.* Climbing American Banistera, with a blue spiked Flower.

4. *BANISTERIA Americana scandens, foliis subrotundis, subtus pubescentibus. Houst.* Climbing American Banistera, with roundish Leaves, of a whitish Colour underneath.

5. *BANISTERIA Americana scandens, pseudoacaciae folio, flore purpurascente. Houst.* Climbing American Banistera, with a bastard acacia Leaf, and a purplish Flower.

These Plants are all of them Natives in the warmest Parts of *America*, where they grow in the Woods, and twist themselves round the Trunks of other Trees or Plants which grow near them ; some of them growing four or five Feet high, and others will rise to the Height of ten, twelve, or fourteen Feet ; but must be supported by other Plants, for they do not grow erect.

The first, second and third Sorts, grow plentifully in the Woods in *Jamaica* ; but the other two Sorts were collected by the late Dr. *William Houstoun*, at *Carthagena* in the *Spanish West-Indies*. These were called

Maples, by Sir *Hans Sloane* and Father *Plumier*, from the Resemblance which their Seeds have to those of the Maple ; but the Flower differing so remarkably from that of the Maple, the late Dr. *Houstoun*, with good Reason, separated it from that Genus, and gave the Name of Banistera to them.

These Plants may be propagated by Seeds, which must be procured from the Places of their Growth. The surest Method to succeed, is to take the Seeds, when they are fully ripe, and put them into a Tub of Earth or Sand (for if they are brought over dry, they will not grow). When the Seeds arrive, they should be immediately sown in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to keep the Earth constantly moist. These Seeds will sometimes lie several Months in the Ground, before they shoot, and at other times they will come up in a Month or five Weeks after sowing. When they begin to appear, they must be duly watered, and constantly kept clear from Weeds, and in warm Weather the Glasses should be raised to admit fresh Air to them. When they are about two Inches high, they should be carefully shaken out of the Pots, and parted, planting each into a separate small Pot, and then plunged into the Hot-bed again, observing to water and shade them until they have taken new Root ; after which time they must have a large Share of fresh Air in warm Weather, and must be frequently watered.

When they have filled these small Pots with their Roots, they should be shaken out, and transplanted into Pots of a larger Size ; and must be plunged into the Bark-bed again. When they are grown too tall to remain

remain under the Glasses of the Hot-bed, they must be removed into the Bark-stove, and placed amongst other tender Exotic Plants, where if they thrive well, they will produce Flowers in two or three Years.

BARBA-JOVIS, Silver-Bush, or Jupiter's-Beard.

The *Species* omitted in the former Volumes, are ;

1. BARBA-JOVIS *Græca, linariæ folio argenteo ampliori, flore luteo parvo. Tourn. Cor. Greek* Jupiter's-Beard, with a silver toad-flax Leaf, and small yellow Flowers.

2. BARBA-JOVIS *Americana annua humilis ramosissima, floribus spicatis cæruleis. Dwarf annual American* Jupiter's-Beard, with blue Flowers growing in a Spike.

3. BARBA-JOVIS *Americana scandens, floribus cæruleis, ad alas foliorum conglobatis. Climbing American* Jupiter's-Beard, with blue Flowers coming out from the Wings of the Leaves.

4. BARBA-JOVIS *Americana humilis rotundifolia & villosa, flore vario. Houst. Dwarf American* Jupiter's-Beard, with round hairy Leaves, and a variable Flower.

5. BARBA-JOVIS *Cretica frutescens incana, flore spicato purpureo amplo. Breyn. Prod. 2. Shrubby* Jupiter's-Beard of Crete, with white Leaves, and large purple Flowers growing in a Spike.

The first and fifth Sorts were discovered by Dr. Tournefort in the Archipelago, and were brought to the Royal Garden at Paris, from whence they have been distributed to several of the European Gardens: these may be propagated in the same manner as the common Sort, and require the same Culture.

The second Sort is an annual Plant, which was discovered by Dr. William Houstoun at Campechy. This is only

propagated by Seeds, which must be sown very early in the Spring on a good Hot-bed; and when the Plants are come up two Inches high, they should be each transplanted into a small Pot filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time they should have Air and Water in Proportion to the Heat of the Season. In July they will flower, and if they are preserved either in the Stove or under Glasses, they will perfect their Seeds in September, and soon after they will decay.

The third and fourth Sorts may be propagated from Seeds, which must be sown as hath been directed for the second; but these are abiding Plants, which must be placed in the Stove amongst other American Plants, and will produce their Flowers every Year.

BARLERIA.

This Name was given to this Genus of Plants by Father Plumier, in Honour of Jacobus Barlier of Paris, who was a famous Botanist. We have no English Name for it, but the Inhabitants of the Island of Jamaica call it Snap-dragon.

The Characters are ;

It hath a personated Flower, consisting of one Leaf, whose upper Lip or Crest is erect, but the under is divided into three Parts; from whose Empalement rises the Pointal in the hinder Part of the Flower, which afterwards becomes a quadrangular oblong membranaceous Fruit, with one Capsule, in which are lodged flat roundish Seeds.

The Species are ;

1. BARLERIA *solani folio, flore coccineo. Plum. Nov. Gen. Barleria* with a night-shade Leaf, and a scarlet Flower.

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2. *BARLERIA aculeata, solani folio angustiore, flore caeruleo. Plum. Nov. Gen.* Prickly Barleria, with a narrow night-shade Leaf, and a blue Flower.

The first of these Plants is very common in *Jamaica*, and several other Parts of the *West-Indies*, but at present it is very rare in *England*. It grows to the Height of three or four Feet, and divides into many slender Branches, which are hoary. On the Top of the Branches come out the Flowers, which are of a fine red Colour, and shaped like those of the *Antirrhinum* or *Calves-snout*; these Flowers are succeeded by quadrangular Seed-vessels, which are about an Inch long, and contain a great Number of flat brown Seeds. These Seeds, when ripe, are cast out with Violence on their Vessels being touched.

The second Sort is less common in *Jamaica* than the first, but it grows in great Plenty on some of the *French Islands* in *America*. This doth not rise above two Feet high; the Leaves are narrower than those of the former Sort, and the Flowers are of a fine blue Colour.

These Plants are propagated by Seeds, which should be carefully gathered when ripe, and must be sown in Pots filled with light fresh Earth early in the Spring; these Pots must be plunged into a Hot-bed of *Tanners Bark*, and should be frequently watered; but this must be done with great Caution, otherwise the Seeds may be washed out of the Earth. In about a Month's time the Plants will begin to appear, when they should be watered two or three times a Week, according as the Earth in the Pots shall become dry. In very warm Weather the Glasses of the Hot-bed should be raised, in order to admit fresh Air to the Plants,

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as also to let out the Steam which may arise from the Bed: But if the Nights are cold, the Glasses should be covered with Mats, to preserve a gentle Warmth in the Bed; otherwise the Plants will starve.

When the Plants are about an Inch high, they should be carefully shaken out of the Seed-pots, and each planted into a separate half-penny Pot, filled with light fresh Earth, and then plunged into a moderate Hot-bed of *Tanners Bark*, observing to water and shade them until they have taken new Root; after which time they should have the Glasses of the Hot-bed raised every Day, in Proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed. You must also water them frequently, but you must observe to let the Water fall gently on them, otherwise you will destroy the Plants when they are small.

In two Months after their removing (if the Plants have thriven) they will have filled the small Pots with their Roots; therefore they should be shaken out of those Pots, and their Roots trimmed, and then put into Penny-pots, which should be filled with light fresh Earth, and plunged into the Hot-bed again, where (if the Frames are deep enough to contain the Plants, without pressing of their Tops) they may remain all the Summer Season, observing to admit a large Share of fresh Air in warm Weather, as also to refresh them with Water as often as they shall require it. With this Management the Plants will sometimes produce their Flowers the same Season, but they seldom produce good Seeds in this Climate the first Year; so that at *Michaelmas* you should remove some Plants of each Kind into the *Bark-stove*, where they

they should be often refreshed with Water during the Winter Season, but it should not be given to them in large Quantities. The Stove should be kept to temperate Heat, which will preserve these Plants through the Winter in good Health, and the following Summer they will produce Flowers and Seed in great Plenty.

BASELLA ; Climbing Night-shade.

The *Species* omitted in the former Volumes, are ;

1. *BASELLA flore albo, foliis & caulibus viridibus*. Climbing Night-shade from *Malabar*, with white Flowers, and pale green Stalks and Leaves.

2. *BASELLA Sinica, foliis & caulibus viridibus, minus succulentibus, fructu minori*. *Jess.* Climbing Indian Night-shade, with green Stalks and Leaves, which are less succulent, and a small Fruit.

The first Sort is exactly the same as the common Sort, excepting the Colour of the Leaves, Stalks, and Flowers ; but I have observed, it constantly retains the same Colour, so that I don't believe it to be an accidental Variety from Seeds ; for from all the Seeds which I have sown I never found any one of the Plants which differed from the Parent Plant. These two Plants seldom continue more than one or two Years, but as they produce Seeds in Plenty, they may be easily propagated.

The second Sort is less common in *England* than either of the former. I received the Seeds of this Plant from Dr. *Jessieu* of *Paris*, from which I have obtained a Variety with variegated Stalks and Leaves. This Sort will not perfect its Seeds so soon as either of the former Sorts ; therefore must be placed in the Stove,

where it will continue through the Winter, and produce ripe Seeds the second Year. All these Sorts may be propagated by Cuttings, which should be laid to dry a Day or two after they are taken from the Plants, before they are planted, that the Wound may heal, otherwise they will rot. These Cuttings must be planted into Pots filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, where they will take Root in a Fortnight or three Weeks time, when they should be treated in the same manner as the seedling Plants.

All these Plants will climb to a considerable Height, and send forth a great Number of Branches, so that they should have a Place near the Back of the Stove, where they may be trained up to a Trellise, or fastened to the Back of the Stove ; otherwise they will twist themselves about whatever Plants stand near them, which will make a very disagreeable Appearance in a Stove, and also be very injurious to the other Plants ; whereas, when they are regularly trained to a Trellise, they will have a good Effect in adding to the Variety.

From the Berries of the first Sort I have seen a beautiful purple Colour drawn, but when used for Painting, did not continue very long, but chang'd to a pale Colour ; tho' I believe there might be a Method invented, whereby this beautiful Colour might be fixed, so as to become very useful ; for I have been assured, that the Juice of these Berries has been used for staining of Callicoes in *India*.

BAUHINIA ; Mountain-Ebony, *vulgò*.

The *Species* omitted in the former Volumes, are ;

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1. *BAUHINIA aculeata, folio rotundo emarginato, flore magno albo.* *Houft.* Bauhinia with round Leaves, and large white Flowers.

2. *BAUHINIA flore luteo spicato, folio subrotundo bicorni.* *Houft.* Bauhinia with a yellow spiked Flower, and a round Leaf divided at the Top.

3. *BAUHINIA non aculeata, folio nervoso bicorni, floribus albicantibus.* *Houft.* Smooth Bauhinia, with a nervous Leaf divided at the Top, and white Flowers.

4. *BAUHINIA non aculeata, folio subrotundo majore, rigido & bicorni, flore purpurascete.* *Houft.* Smooth Bauhinia, with a large stiff Leaf divided at the Top, and a purplish Flower.

5. *BAUHINIA scandens & frutescens, folio subrotundo & bicorni, flore albo.* Shrubby climbing Bauhinia, with a round divided Leaf, and a white Flower.

The first Sort grows at *Carthage*, from whence I received Specimens of this Plant, collected by the late Dr. *William Houstoun*.

The second, third, fourth and fifth Sorts, have been collected in the *Spanish West-Indies*, from whence I have receiv'd their Seeds, with fair Samples of the Plants dried; some of them were collected by the late Dr. *Houstoun*, and the others by Mr. *Robert Millar*, Surgeon.

These Plants are only propagated from Seeds, which may be easily procured from the *West-Indies*, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up two or three Inches high, they should be transplanted, each into a separate small Pot, filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after

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which they must have Air and Water in proportion to the Warmth of the Season, and the Bed in which they are placed. When the Plants have quite filled these Pots with their Roots, they should be removed out of their Pots, and after paring off the Roots on the Outside of the Ball of Earth, they must be put into Pots a Size larger than those, observing to fill the Pots with the same fresh Earth; and if the Plants are too high to stand under the Glasses of the common Hot-bed, they must be plunged into the Bark-bed in the Stove, being careful to water them as often as they shall require it, and to let them have Air in Summer, in proportion to the Heat of the Season; but in the Winter they must be kept pretty close. The first Sort will not require so great a Share of Heat as the second or third, both which are pretty tender Plants, and should be placed near the Fire, or in a Stove, amongst other of the most tender Plants. If these Rules be observed, and the Pots changed every Year, and new Earth applied to their Roots, they will make great Progress, and may be expected to flower in a few Years; but they must always be preserved in the Bark-stove.

BELLADONA; The Deadly Night-shade.

The Species omitted in the former Volumes, are;

1. *BELLADONA minoribus foliis & floribus.* *Tourn.* Deadly Night-shade with smaller Leaves and Flowers.

2. *BELLADONA frutescens rotundifolia Hispanica.* *Tourn.* Shrubby Spanish Deadly Night-shade, with a round Leaf.

3. *BELLADONA Americana frutescens, flore albo, nicotianæ folio.* *Plum. Cat.* Shrubby American Deadly Night-shade, with a white Flower, and a tobacco Leaf.

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The first Sort is not very common in *England*, but it is preserved in Botanic Gardens for Variety.

This and the common Sort are both easily cultivated, by sowing of their Seeds in the Spring on any Soil, or in any Situation; and when the Plants are come up, they may be transplanted into any abject Part of the Garden, where if they are suffered to remain, and drop their Fruit, they will fill the Ground with young Plants, and the old Roots will continue several Years. I have frequently seen these Plants growing out of the Joints of Walls, where they have endured the severest Frost, and the greatest Drought, for several Years; they also grow equally well in low moist Soils, so that there is no Danger of their succeeding in any Place. The green Herb of these Plants is sometimes used in cooling Ointments, as a Substitute for the Garden Night-shade, which being an annual Plant, is not to be had so early in the Season, as the other Herbs used in these Ointments; when the *Belladonna*, being in Perfection, is by many used.

The shrubby *Spanish* Kind is preserved by the Curious in Botany for the sake of Variety, but there is very little Beauty in it. This will grow to the Height of eight or ten Feet, and have a strong woody Stem. It may be propagated by planting the Cuttings in the Spring upon a moderate Hot-bed, observing to water and shade them until they have taken Root, after which they must be inured to the open Air by Degrees, and then they must be carefully potted, and placed in the Shade until they have taken new Root, when they may be set abroad with Myrtles, Oleanders, &c. and in Winter they must be removed into the Green-house, and placed amongst the hardier Kinds of Exotics. This Plant pro-

duces Flowers every Year; but I have not observed any Fruit in *England*.

The third Sort was discovered by Father *Plumier* in the *French* Settlements in *America*; it hath also been found by Mr. *Robert Millar*, Surgeon, in the *Spanish West-Indies*; from whom I received the Seeds of this Plant. It is propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark. When the Plants are come up an Inch high, they should be carefully transplanted, each into a separate small Pot, and plunged into the Hot-bed again, observing to water and shade them until they have taken Root; after which time, they should have fresh Air admitted to them every Day by raising of the Glasses, and they must be constantly supplied with Water. During the Summer Season they may remain in these Hot-beds, but in Winter they must be removed into the Bark-love, where if they are kept in a temperate Degree of Heat, they will thrive extremely well, and produce their Flowers.

BELLONIA.

This Plant was so named by Father *Plumier*, in Honour of the famous *Petrus Bellonius*, who has left many valuable Tracts on Natural History, &c.

The Characters are;

It hath a wheel-shaped Flower consisting of one Leaf, and divided at the Top into several Parts; from whose Cup arises the Pointal, fixed in the middle of the Flower like a Nail: the Flower-cup afterward becomes a hard oval pointed Fruit, in which are contained many small Seeds.

We have but one Species of this Plant, viz.

BELLONIA

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BELLONIA frutescens, folio melissæ asperø. Plum. Nov. Gen. Shrubby Bellonia, with a rough Balm-leaf.

This Plant is very common in several Parts of *America*, from whence I have received the Seeds, which were collected by the late Dr. *William Houston*.

It is propagated by Seeds, which should be sown early in the Spring, in a Pot filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to water it frequently, as the Earth appears dry; but you must be careful not to wash the Seeds out of the Ground. When the Plants are come up half an Inch high, they should be carefully transplanted into Pots filled with light fresh Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken Root; after which time they should have Air admitted to them every Day when the Weather is warm, and they must be frequently watered. When the Plants have filled these Pots with their Roots, they should be carefully shaken out of them, and their Roots trimmed, and put into larger Pots filled with light fresh Earth, and then plunged into the Hot-bed again, observing to admit a larger Share of Air to them, as the Weather becomes warmer, and as the Plants increase in Strength. In these Beds the Plants may remain during the Summer Season, provided the Glasses will admit of them to stand under them without pressing their Tops; at *Michaelmas* the Plants should be placed in the Stove, where they should be frequently watered during the Winter, but it should be given to them moderately at this Season: The Stove in which these Plants are placed, should be kept to temperate Heat, which is more agreeable to them than a greater

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Warmth at that Season. The second Year these Plants will sometimes flower, but they rarely produce good Seeds in this Climate; however, they may be propagated by Cuttings, in the Summer Months, provided they are planted in light Earth on a moderate Hot-bed, and carefully watered and shaded until they have taken Root. These Plants must be constantly kept in the Stove, and should have a large Share of free Air in warm Weather; but if they are set abroad, they will not thrive in this Climate.

BERMUDIANA.

This Plant takes its Name from the *Bermudas* Islands, from whence the Seeds of the first Species are brought.

The Characters are;

It hath a Lily-flower, composed of six Petals, whose Empalement becomes a triangular Fruit, which opens in three Parts, and is divided into three Cells, which are filled with roundish Seeds.

The Species are;

1. *BERMUDIANA Iridis folio, fibrosa radice. Tourn.* Bermudiana with a fleur-de-lys Leaf, and a fibrous Root.

2. *BERMUDIANA palmæ folio, radice bulbosa. D. Lign. Tourn.* Bermudiana with a Palm-leaf, and a bulbous Root.

The first Sort may be propagated by sowing of the Seeds in the Spring on a moderate Hot-bed, and when the Plants are come up, they should be transplanted into small Pots filled with light fresh Earth, and placed in a shady Situation until they have taken Root; after which time they may be exposed to the open Air in Summer, but in Winter they must be sheltered from severe Frost, to which if they are exposed, it will destroy them. This Sort may also be

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be propagated by parting of their Roots in the Spring, but they should not be divided into too small Parts, lest it prevent their Flowering. These Plants produce small blue Flowers in June and July, and in kindly Seasons will perfect their Seeds in this Country.

The second Sort never produces any Seeds in England, therefore can be only propagated by Off-sets; this has a bulbous Root, about the Size of the Corn-flag, but is not so flat; the Leaves of it die off in Winter, and in the Spring there are new ones put forth. This Plant is much tenderer than the former, and requires a Stove to preserve it thro' the Winter; in Summer the Pots should be placed in a Bark-bed, otherwise the Plants will not produce Flowers in this Country; in Winter they should have very little Water given to them, for Wet will soon rot the Roots, when their Leaves are decayed. There is no great Beauty in either of these Plants; but they are preserved by the Curious for Variety-sake.

BERNARDIA.

This was so named by the late Dr. William Housfoun, in Honour of Dr. Bernard de Jussieu, Demonstrator of Plants in the Royal Garden at Paris.

The Characters are;

It is Male and Female in different Plants; the Male Plants produce small Katkins, which, when ripe, fall off; the Female Plants have apetalous Flowers, which are succeeded by tricoccus Fruits, resembling those of the Ricinus.

The Species are;

1. *BERNARDIA frutescens erecta, carpinifolia, mas. Houst.* Male upright shrubby Bernardia, with an hornbeam Leaf.

2. *BERNARDIA frutescens erecta,*

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carpinifolia, femina. Houst. Female upright shrubby Bernardia, with an hornbeam Leaf.

3. *BERNARDIA fruticosa maritima repens, foliis subrotundis & subtus argenteis, mas. Houst.* Male creeping shrubby Bernardia, with roundish Leaves, which are of a silver Colour underneath.

4. *BERNARDIA fruticosa maritima repens, foliis subrotundis & subtus argenteis, femina. Houst.* Female creeping shrubby Bernardia, with roundish Leaves, which are of a silver Colour underneath.

The two first Sorts were found by Doctor Housfoun in Jamaica, where they are in great Plenty near the Sea, and generally grow near each other; so that where-ever a Female Tree is found, there is rarely a Male wanting near it. These usually grow to the Height of eight or ten Feet, and divide into many Branches; the Flowers are produced at the Joints, near the Footstalks of the Leaves.

The other two Sorts were found by Doctor Housfoun at La Vera Cruz, where they grow on the Shore upon the Sand-banks; these seldom rise above a Foot high, having many trailing Branches, which send forth Roots from their Joints, whereby they propagate themselves.

These Plants may be obtained from Seeds, which should be brought over soon after they are ripe, and sown in Pots filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing frequently to water them. When the Plants are come up, they should be carefully transplanted into separate Pots filled with light fresh Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken Root; after which time they should have Air and

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and Water in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed; in Summer they should have a large Share of fresh Air in warm Weather, and should be frequently watered; but in Winter they must be placed in a Stove, where they should be kept in a moderate Heat, and must be frequently watered, but it should not be given to them in large Quantities at that Season. With this Management they will thrive extremely well, and will produce their Flowers in this Climate, but they will rarely perfect their Seeds in this Country. These Plants may be propagated by Cuttings, or laying down their tender Branches in the Spring; which, if duly watered, will take Root in three Months, when they may be cut off from the old Plants, and treated as those raised from Seeds.

BESLERIA.

This Plant was named after *Basilus Besler*, an Apothecary at *Nuremberg*, who was the Author of a Book intitled *Hortus Eystetensis*.

The Characters are;

It hath a Flower consisting of one Leaf, which is tubulous, and of an anomalous or personated Figure, having two Lips; from whose Cup arises the Pointal, which is fixed like a Nail in the hinder Part of the Flower, which afterward becomes a soft fleshy oval-shaped Fruit, in which are many small Seeds.

The Species are;

1. *BESLERIA melissæ Tragi facie.* *Plum. Nov. Gen.* Bessleria with the Face of *Tragus's Balm*.

2. *BESLERIA virgæ aureæ foliis, flore luteo, minor.* *Plum. Nov. Gen.* Bessleria with golden-rod Leaves, and a small yellow Flower.

3. *BESLERIA virgæ aureæ foliis, flore luteo, major.* *Plum. Nov. Gen.*

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Bessleria with golden-rod Leaves, and a large yellow Flower.

4. *BESLERIA scandens cristata, fructu nigro.* *Plum. Nov. Gen.* Climbing Bessleria, with a black Fruit.

These four Plants are common in the warm Parts of *America*, from whence the Seeds have been brought into *Europe*, and have been cultivated in some curious Botanic Gardens. These Seeds should be sown on a Hot-bed early in the Spring, and when the Plants are come up half an Inch high, they should be each transplanted into a small Pot filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time they should have Air and Water in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed. When the Plants have filled these small Pots with their Roots, they should be shaken out of them, and their Roots trimmed, and then put into larger Pots filled with light fresh Earth, and plunged into the Hot-bed again; where they should have a large Share of fresh Air in warm Weather, and must be frequently watered. With this Management these Plants will thrive very well in Summer, but in Winter they must be removed into the Stove, where they must be placed in a temperate Warmth, and should be often watered. The second Year these Plants will flower, and sometimes they will perfect their Seeds in this Country; but they must be constantly preserved in the Stove, for they will not live in the open Air.

BETONICA; Betony.

The Species omitted in the former Volumes, are;

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1. *BETONICA alba*. C. B. P. Betony with a white Flower.

2. *BETONICA major Danica*. Park. Theat. Greater Danish Betony.

3. *BETONICA minima Alpina Helvetica*. Park. Theat. The least Betony of the Helvetian Alps.

4. *BETONICA Alpina incana purpurea*. Borell. Icon. Hoary Alpine Betony, with purple Flowers.

5. *BETONICA orientalis, folio angustissimo & longissimo, spica florum crassiore*. Tourn. Cor. Eastern Betony, with a long narrow Leaf, and a thick-Spike of Flowers.

6. *BETONICA rubicundissimo flore, Montis Aurei*. H. R. P. Betony with a very red Flower of Mount d'Or in Auvergne.

7. *BETONICA orientalis latifolia, caule brevi, flore maximo*. Tourn. Cor. Broad-leav'd Eastern Betony, with a short Stalk, and a very large Flower.

8. *BETONICA arvensis annua, flore ex albo flavescente*. Tourn. Annual Field Betony, with a yellowish white Flower.

9. *BETONICA Alpina latifolia major villosa, flore luteo*. H. R. Par. Great broad-leav'd hairy Betony of the Alps, with a yellow Flower.

These Plants are all of them hardy, and may be propagated by sowing of their Seeds in the Spring, on a Bed of fresh Earth; and when the Plants are come up strong enough to transplant, they should be planted on a shady Border, where they will thrive, and the second Year will produce Flowers, and perfect their Seeds. The eighth Sort is an annual Plant, which should be sown soon after the Seeds are ripe; for if they are sown in the Spring, the Seeds do not come up so well, nor will the Plants produce good Seeds; so that, if the Seeds are permitted to shed,

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the Plants will come up and thrive without any farther Culture.

All these Sorts are preserved by the Curious in Botany for Variety, but there are none of them used except the common Sort, which grows wild in Woods, and other shady Places, in divers Parts of England. This is greatly esteemed as a vulnerary Herb; *Antonius Musa* Physician to the Emperor *Augustus* wrote a whole Book concerning the Virtues of this Plant, from whence it came to be so much in Esteem, that they have a Proverb in Italy to this Purpose; *Vende la Tonica, e compra la Betonica*, i. e. Sell your Coat, and buy Betony; and when they would praise any Person very much, they say, He has more Virtue than Betony.

BIDENS; Water Hemp-Agrimony.

The Characters are;

It hath a compound Flower, for the most part flosculous, consisting of many Florets, divided into several Segments, sitting on the Embryo, and contained in the Flower-cup; sometimes there are also found Semi-florets: the Embryo afterward becomes a Seed, ending in Prickles.

The Species are;

1. *BIDENS foliis tripartito divisis*. Cæsalp. Water Hemp-Agrimony with a divided Leaf.

2. *BIDENS folio non dissecto*. Cæsalp. Water Hemp-Agrimony, with an undivided Leaf.

3. *BIDENS Canadensis latifolia, flore luteo*. Tourn. Broad-leav'd Hemp-Agrimony of Canada, with a yellow Flower.

4. *BIDENS Americana, apii folio*. Tourn. American Hemp-Agrimony, with a smallage Leaf.

5. *BIDENS Indica, hieracii folio, caule alato*. Tourn. Indian Hemp-Agri-

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Agrimony, with an Hawk-weed-leaf, and winged Stalk.

6. *BIDENS trifolia Americana, leucanthemi flore. Tourn.* Three-leav'd American Hemp-Agrimony, with a greater daisy Flower.

7. *BIDENS Americana ramosissima, foliis gramineis, flore parvo luteo. Hieracium fruticosum, angustissimis gramineis foliis, capitulis parvis. Sloan. Cat.* American branchy Hemp-Agrimony, with grassy Leaves, and small yellow Flowers.

The two first Sorts, growing wild in moist Places, and by the Sides of Ditches and standing Waters, in most Parts of England, are rarely permitted to have a Place in Gardens.

The third and fourth Sorts are Natives of the northern Parts of America, where they are the most common Weeds. These must be raised on a Hot-bed in the Spring, in order to bring the Plants forward; otherwise they will not perfect their Seeds in this Country.

The fifth, sixth and seventh Sorts, were brought from the warmer Parts of America; therefore they require a greater Share of Heat to bring them to flower and seed in England. They are all annual Plants, so must be raised every Spring on a Hot-bed, and afterwards planted into Pots, and the two last should be placed in a Bark-bed, to bring them to flower; but the other three Sorts may be placed in the open Air, when the Plants have obtain'd sufficient Strength; but must be frequently watered in dry Weather. There is no great Beauty in these Plants, but they are preserved in many curious Gardens for Variety.

BIGNONIA; Trumpet Flower.

The Species omitted in the former Volumes, are;

1. *BIGNONIA Americana arborescens pentaphylla, flore roseo, major,*

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siliquis planis. Plum. White-Wood, or Tulip-Flower, vulgè.

2. *BIGNONIA scandens tetraphylla, fructu maximo echinato. Houst.* Climbing four-leav'd Bignonia, with a large echinated Pod.

3. *BIGNONIA scandens tetraphylla, flore racemoso carneo. Houst.* Climbing four-leav'd Bignonia, with flesh-colour'd Flowers growing in long Bunches.

4. *BIGNONIA Americana, foliis subrotundis glabris, fructu compresso orbiculato.* Trumpet Flower, with smooth roundish Leaves, and round compressed Fruit.

5. *BIGNONIA Americana scandens, foliis pinnatis hirsutis, & marginibus sinuatis, siliquis longissimis & angustissimis.* Climbing American Trumpet Flower, with winged hairy Leaves indented on their Edges, and long narrow Pods.

6. *BIGNONIA Americana scandens, triphylla & pentaphylla, lobis amplioribus mucronatis & serratis, siliquis longis compressis marginatis.* Climbing Trumpet Flower, with three and five Leaves, which are large, pointed, and sawed on their Edges, and long flat Pods, which are bordered.

7. *BIGNONIA Caroliniana scandens, & sempervirens, foliis angustis glabris, floribus luteis odoratis, siliquis brevissimis.* Climbing Carolina Trumpet Flower, with narrow smooth Leaves, sweet yellow Flowers, and short Pods, commonly called yellow Jasmine in America.

The first Sort grows upright to a considerable Size in the West-Indies, but in England it only makes a large Shrub, and produces Flowers annually in great Plenty. This Plant makes a beautiful Appearance in the Stove, the Leaves being large, of a thick Substance, and a shining green Colour; the Flowers are large, and have a sweet Scent, but are of a short

Duration. The Cuttings of this Plant will take Root, if they are taken off toward the latter End of *March*, before the Plants begin to shoot, and laid in the Stove two or three Days to heal the wounded Part before they are planted; for there is a large Quantity of a milky Juice in this Plant, which will occasion the rotting of the Cuttings, if they are planted too green. These Cuttings must be planted in Pots filled with fresh Earth, and plunged into a Hot-bed of Tanners ark; observing to shade them in the Heat of the Day, and to refresh them with Water; but it must not be given in too large Quantities, lest it rot the Cuttings. It may also be propagated from Seeds, which may be obtain'd from *Jamaica* or *Barbadoes*; but it should be brought over in the Pods, otherwise it will not keep, and should be sown as soon as possible, in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed. When the Plants come up, they must be each transplanted into a separate Pot filled with the same Sort of Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken Root; after which they must be treated in the manner directed for the Coffee-tree, and other tender Plants, which are preserved in the Bark-stove.

The second and third Sorts are trailing Plants of lower Growth: these were sent from *Carthagera* by the late Dr. *Houssoun*. They may be propagated from Seeds, or by laying down of the Branches, which will take Root in three or four Months. They should be treated in the same manner as the former Sort, and must be kept in the Bark-stove; but they do not require so much Heat in Winter, and in Sum-

mer should have more Air; otherwise they will draw up weak. They have not produced Flowers in *England* as yet; though, from the Appearance of the Plants, we may expect them to flower very soon.

The fourth, fifth and sixth Sorts, were discovered by Mr. *Robert Millar*, Surgeon, at *Campechy*, from whence he sent their Seeds, which have succeeded in the Physic-Garden at *Chelfea*, where these Plants are now growing.

All these Sorts may be propagated by Seeds, which should be sown in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark. These Pots should be frequently watered to keep the Earth moist, otherwise the Seeds will dry up, which will prevent their growing. When the Plants are come up, they should be each transplanted into a separate small Pot filled with light fresh Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken fresh Root; after which time they should have Air and Water in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed. As these Plants advance in Strength, so they should be shifted into larger Pots; and when they are grown too tall to stand under the Glasses of the Hot-bed, they should be removed into the Bark-stove, where they should be kept in a moderate Heat, and must be frequently refreshed with Water. With this Management the Plants will thrive extremely well, and in two Years many of them will produce their Flowers, but they rarely perfect their Seeds in this Country.

The seventh Sort is very common in *South-Carolina*, where it climbs on the Hedges, or whatever Plants grow

grow near it; and in Summer produces fine Bunches of yellow Flowers, which have a most agreeable Scent. This may be propagated by Seeds as the former Sorts, and will thrive in a less Degree of Heat than either of them.

BIHAI.

This is the *American* Name of the Plant.

The *Characters* are;

It hath a tubulous Flower consisting of one Leaf, shaped almost like a Lily, and cut into two Parts; the Pointal and Stamina are included in two Leaves. The Pointal afterwards becomes a fleshy three-cornered Fruit, containing three hard rough Seeds. To these Notes should be added, many Flowers contained in a common Empalement.

The *Species* are;

1. BIHAI *amplissimis foliis, florum vasculis coccineis. Plum. Nov. Gen.* Bihai with large Leaves, and a scarlet Covering to the Flowers.
2. BIHAI *amplissimis foliis, florum vasculis subnigris. Plum. Nov. Gen.* Bihai with large Leaves, and black Covering to the Flowers.

These Plants are at present very rare in *Europe*. I received Seeds of the first Sort from *Panama*, which came up in the Physic-Garden at *Chelsea*; but the Plants have not produced any Flowers as yet.

They may be propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate Pot filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time in warm Weather they should have a large Share of fresh Air, and must be frequently watered. During the Summer Sea-

son the Plants may remain in the Hot-bed; but in Winter they must be removed into the Stove, and placed near the Fire-place, that they may have a great Share of Heat, without which they will not live through the Winter in this Climate: they must also be frequently watered, but it should not be given to them in too great Plenty in the Winter Season, though in the Summer they will require a large Share of Moisture. With this Management these Plants will produce their Flowers very well in this Climate.

BOCCONIA.

This Plant was so called after the Reverend Paul Boccone of Sicily, who has published some curious Books of Botany.

The *Characters* are;

It hath a Flower consisting of one Leaf; from the Middle arises the Pointal, which afterward becomes an oval-shaped pointed Fruit, which is full of Juice, each containing one round Seed.

We have but one *Species* of this Plant, viz.

BOCCONIA racemosa, sphondylii folio tomentoso. Plum. Nov. Gen. Branching Bocconia, with a woolly cow-parinip Leaf.

This Plant is called by Sir *Hans Sloane*, in his Natural History of *Jamaica*, *Chelidonium majus arborescens, foliis quercinis*; or greater Tree Celandine, with Oak-leaves.

It is very common in *Jamaica*, and several other Parts of *America*; where it grows to the Height of ten or twelve Feet, having a strait Trunk, as large as a Man's Arm, which is covered with a white smooth Bark. At the Top it divides into several Branches, on which the Leaves are placed alternately. These Leaves are eight or nine Inches long, and five or six broad; are

deeply sinuated sometimes almost to the Mid-rib, and are of a fine glaucous Colour; so that this Plant makes a beautiful Variety among other Exotic Plants in the Stove. The whole Plant abounds with a yellow Juice like the greater Celandine, and is of an acrid Nature, so that it is used by the Inhabitants of *America*, to take off Warts, and Spots from the Eyes.

It is propagated by Seeds, which should be sown in a Pot filled with light fresh Earth, early in the Spring, and plunged into a Hot-bed of Tan-ners Bark, observing to water it frequently, otherwise the Seeds will not grow; when the Plants are come up, they should be each transplanted into a separate small Pot, filled with light sandy Earth, and plunged into the Hot-bed again, observing to shade the Glasses in the Heat of the Day, until the Plants have taken Root: you must also refresh them gently with Water, but it should be done frequently, and given to them sparingly while they are young; for their Stems being very tender, and full of Juice, will rot, if they receive too much Moisture; but after their Stems are become woody, they will require a plentiful Share of Water, especially in hot Weather, when also they should have a large Share of Air, by raising the Glasses of the Hot-bed. The Plants, in two Months after transplanting, will have filled these small Pots with their Roots; therefore they should be shaken out of them, and planted into larger Pots filled with light fresh Earth, and should be plunged into the Bark-stove, where they should have a large Share of fresh Air in warm Weather, and must be plentifully watered. With this Management I have raised these Plants upward of two Feet high in one Sea-

son, which were also very strong in their Stems. These Plants must be constantly kept in Stoves, allowing them a temperate Heat in Winter; and in Summer they should have a large Share of Air in warm Weather, as also a large Share of Moisture. This Plant has produced Flowers, and perfected its Seeds, in some curious Gardens in *England*. The *Indians* are very fond of it; for *Hernandez* tells us, the *Indian* Kings did commonly plant it in their Gardens.

BONDUC; The Nickar-tree, *vulgò*.

The Characters are;

It hath a polypetalous or a monopetalous Flower, cut very deeply into several Segments, but is almost of an anomalous Figure; from whose Calyx arises the Pointal, which afterward becomes a Pod beset all over with Prickles, in which are contained one or two round hard Seeds.

The Species are;

1. BONDUC *vulgare majus polyphyllum*. Plum. Nov. Gen. The yellow Nickar, or Horse-nickar, *vulgò*.

2. BONDUC *vulgare minus polyphyllum*. Plum. Nov. Gen. The grey or ash-coloured Nickar.

These two Plants are very common in *Jamaica*, *Barbadoes*, and the *Caribbee Islands*, where the Children use the Fruit for Marbles, their outer Coats being so hard, as with great Difficulty to be broken. These Fruit are often brought to *England*, and formerly were used for Buttons, but at present I don't know any Use there is made of them. They commonly grow to the Height of ten or twelve Feet, and twist themselves round any other Trees which grow near them. There is very little Difference between these two Plants, except in the Colour of their Fruit, and that the

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the second Sort has smaller and rounder Leaves than the first.

These are both propagated by Seeds, which are so hard as not easily to be made to vegetate in *England*. The only way by which I have been able to get these Plants from Seeds, is, to put the Seeds into a warm Bed of Tanners Bark, under a Pot, where the Heat of the Tan, and the Moisture which gets through the Pot, will cause the Shell of the Fruit to burst, and the young Plant soon after appears. Then they may be taken out of the Tan, and put each into a small Pot filled with fresh Earth, and plunged into the Tan again. They will make considerable Progress, if they are kept in a warm Bed, and frequently watered. They must also be kept in a Bark-stove in Winter, otherwise it will be difficult to preserve them in this Country. Their Stems, Branches and Leaves, are all beset with sharp crooked Spines, which fasten themselves to the Cloaths of any Person who approaches them. They are preserved for Variety by such as are curious in Exotic Plants.

BRASSICA; Cabbage.

The *Species* omitted in the former Volumes, are;

1. BRASSICA *gongylodes*. C. B. P. The Turnep Cabbage.

2. BRASSICA *asparagodes crispa*. C. B. P. Curled Colewort.

3. BRASSICA *peregrina moschum olens*. H. R. Par. The Musk Cabbage.

4. BRASSICA *maritima arborea, seu procerior ramosa*. Mor. Hist. Branching Tree Cabbage from the Sea-coast.

5. BRASSICA *rugosa, longioribus foliis*. J. B. Brown Broccoli.

6. BRASSICA *arvensis*. C. B. P. Common Colewort.

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7. BRASSICA *Alpina perennis*. Tourn. Perennial Alpine Colewort.

8. BRASSICA *campestris perfoliata, flore albo*. C. B. P. Perfoliated wild Cabbage, with a white Flower.

9. BRASSICA *campestris perfoliata, flore purpureo*. C. B. P. Perfoliated wild Cabbage, with a purple Flower.

The Turnep Cabbage was formerly more cultivated in *England* than at present; for since other Sorts have been introduced, which are much better flavoured, this Sort has been neglected. There are some Persons who esteem this Kind for Soups, but it is generally too strong for most *English* Palates, and is seldom good but in hard Winters, which will cause it to be tender, and less strong.

It may be propagated by sowing the Seeds in *March*, on a Bed of light fresh Earth; and when the Plants are come up about an Inch high, they should be transplanted out into a shady Border, at about two Inches Distance every way, observing to water them until they have taken Root; after which time they will require no other Culture, but to keep them clear from Weeds, unless the Season should prove extremely dry; in which case it will be proper to water them every four or five Days to prevent their being stunted by the Mildew, which is subject to seize them in very dry Weather.

The latter End of *May*, or the Beginning of *June*, they should be transplanted out where they are to remain, allowing them two Feet Distance every way, observing to water them until they have taken Root; after which time they will require no other Culture but to keep them clear from Weeds; and as their Stems advance, so the Earth should be drawn up to them with a Hough, which will preserve the Earth moist about their

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Roots, and prevent their Stems from drying, and growing woody, so that the Plants will grow more freely. In Winter they will be fit for Use, when they should be cut off, and the Stems pulled out of the Ground, and thrown away, as being good for nothing after the Heads are cut off.

The curled Colewort is more generally esteemed than the former. This may be propagated by sowing of the Seeds the Beginning of *July*, and when the Plants are strong enough for transplanting, they should be planted in Rows, about eight or nine Inches asunder, and four or five Inches Distance in the Rows: this Work should be performed at a moist time, when they will soon take Root, and require no farther Care. These will be fit for Use after *Christmas*, and continue good until *April*, so that they are very useful in a Family.

The Musk Cabbage has through Negligence been almost lost in *England*, though, for eating, it is one of the best Kinds we have; but it is tenderer than many other Sorts, and not so profitable for Gardeners who supply the Markets; but those who cultivate them for their own Table, should make Choice of this, rather than any of the common Cabbage; for it is always looser, and the Leaves more crisp and tender, and has a most agreeable musky Scent when cut. This may be propagated in the same manner as the common Cabbage, and should be allowed the same Distance. It will be fit for Use in *October*, *November*, and *December*: but if the Winter proves hard, these will be destroyed much sooner than the common Sort.

The branching Sea-Cabbage is found wild in several Parts of *England*, on the Sea-coast, and is sometimes gathered by the poor Inhabi-

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tants in the Spring, and eaten; but it is apt to be strong and bitter, therefore it is rarely cultivated for Use in the Gardens.

The brown Broccoli is by many Persons greatly esteemed, though it doth not deserve a Place in the Kitchen-Garden, where the *Roman* Broccoli can be obtained, which is much sweeter, and will continue longer in Season. Indeed the brown Sort is much hardier, and will thrive in the coldest Situations, where the *Roman* Broccoli is sometimes destroyed by very hard Winters. The brown Sort should be sown in *April*, and managed as hath been directed for the common Cabbage, and should be planted at the same Distance (which is about two Feet and a half asunder). These will grow very tall, and should have the Earth drawn up to their Stems as they advance in Height. This doth not form Heads so perfect as the *Roman* Broccoli; wherefore the Stems and Hearts of it are the Parts which are eaten.

The *Roman* Broccoli (if well managed) will have large Heads, which appear in the Centre of the Plants, like Clusters of Buds. These Heads should be cut before they run up to Seed, with about four or five Inches of the Stems; the Skin of these Stems should be stripped off, before they are boiled. These will be very tender, and little inferior to Asparagus. After the first Heads are cut off, there will be a great Number of Side-shoots produced from the Stems, which will have small Heads to them, but are full as well flavoured as the large Heads. These Shoots will continue good until the middle of *April*, when the Asparagus will come in Plenty to supply the Table.

Besides this first Crop of Broccoli (which is usually sown the Middle or latter End of *May*) it will be proper

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to sow another Crop the Beginning of *July*, which come in to supply the Table the latter End of *March*, and the Beginning of *April*; and being very young, will be extremely tender and sweet.

In order to save good Seeds of this Kind of Broccoli in *England*, you should reserve a few of the largest Heads of the first Crop, which should be let remain to run up to Seed, and all the Under-shoots should be constantly stripped off, leaving only the main Stem to flower and seed. If this be duly observed, and no other Sort of Cabbage permitted to seed near them, the Seeds will be as good as those procured from abroad, and the Sort may be preserved in Perfection for many Years.

The common Colewort is now almost lost near *London*, where their Markets are usually supplied with Cabbage or Savoy Plants, instead of them; and those being tenderer and more delicate, are better worth cultivating than the common Colewort, which is stronger, and better able to resist the Cold in severe Winters than either of those, but is not near so delicate. And since the Winters in *England* have been generally temperate of late Years, the common Cabbage and Savoy Plants have constantly been cultivated by the Gardeners near *London*, and sold in the Markets as Coleworts. Indeed where Farmers sow Coleworts to feed their Milch Cattle in the Spring, when there is a Scarcity of Herbage, the common Colewort is to be preferred, as being so very hardy, that no Frost will destroy it. The best Method to cultivate this Plant in the Fields, is, to sow the Seeds about the Beginning of *July*, chusing a moist Season, which will bring up the Plants in about ten Days or a Fortnight: the Quantity of Seed for

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an Acre of Land is nine Pounds. When the Plants have gotten five or six Leaves, they should be houghed, as is practised for Turneps, cutting down all the Weeds from amongst them, and also thinning them where they are too thick; but they should be left thicker than Turneps, because they are more in Danger of being destroyed by the Fly. This Work should be performed in dry Weather, that the Weeds may be killed; for if it should prove moist soon after, the Weeds will take Root again, and render the Work of little Use. About six Weeks after, the Plants should have a second houghing, which if carefully performed in dry Weather, will intirely destroy the Weeds, and make the Ground clean, so that they will require no farther Culture. In the Spring they may either be drawn up and carried out to feed the Cattle, or they may be turned in to feed them as they stand; but the former Method is to be preferred, because there will be little Waste, whereas when the Cattle are turned in amongst the Plants, they will tread down and destroy more than they eat.

The perennial *Alpine* Colewort is also little cultivated in the Gardens near *London* at present. This is very hardy, and may be cultivated in the same manner as the former Sort. This will continue two Years before it runs up to Seed, and will afterwards produce many Side-shoots, and in poor Land will continue three or four Years; but in rich Soils it will not last so long. This may be used as the former Sort to feed Cattle, for it is not so good for the Table as the Plants which are now cultivated for that Purpose.

The other two Sorts of wild Cabbage are Varieties fit for a Botanic Garden; but are Plants of no Use.

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These may be propagated by sowing of their Seeds on a Bed of light fresh Earth early in the Spring, in the Place where they are designed to remain (for they do not bear transplanting well). When the Plants are come up pretty strong, they should be thinned, so as to leave them four or five Inches apart, and they must be constantly kept clear from Weeds. In *June* they will flower; and their Seeds will ripen the Beginning of *August*, which if permitted to fall, the Plants will come up, and maintain themselves without any farther Care but to keep them clear from Weeds. They are annual Plants, and perish when they have perfected their Seeds.

BREYNIA.

This Plant was so named by Father Plumier, in Honour to Doctor Breynius, a learned Botanist at Dantzick, who published two Prodomus's to his History of Plants, and one Century in Folio, in which the Plants are curiously delineated and engraven.

The Characters are;

It hath a Rose-flower, consisting of many Petals, which are placed in a circular Order, from whose Flower-cup rises the Pointal; which afterwards becomes a Fruit or Pod, which is soft and fleshy, in which are several kidney-shaped fleshy Seeds.

The Species are;

1. BREYNIA *amygdali foliis latioribus.* Plum. Nov. Gen. Breynia with broad Almond-leaves.

2. BREYNIA *elæagni foliis.* Plum. Nov. Gen. Breynia with Leaves like those of the wild Olive.

Both these Plants are very common in *Jamaica*, and several other Parts of *America*, where they usually grow to the Height of thirty Feet: their Trunks are about the Thickness of a Man's Thigh, which are covered with a smooth ash-coloured Bark. The Branches come out on

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every Side, so as to form a regular Head, and being beset with hoary Leaves, make an agreeable Appearance.

These are both very impatient of Cold, and must be preserved in Stoves, otherwise they will not live through the Winter in this Climate. They may be propagated by Seeds, which may be obtained from *America*. These Seeds should be sown on a Hot-bed early in the Spring, and when the Plants are come up two Inches high, they should be carefully transplanted each into a separate small Pot, filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken new Root; after which time the Glasses of the Hot-bed should be raised every Day in warm Weather, to admit fresh Air to them, as also to let the Steam of the Bed pass off: they must also be frequently watered during the Summer Season, and when they have grown so much as to fill the Pots with their Roots, they should be carefully shaken out of them, and the Fibres round the Outside of the Ball of Earth should be carefully pared off, and then put into Pots a Size larger than those they were in before, which should be filled with light rich Earth, and then plunged into the Hot-bed again, observing to water them frequently in hot Weather, as also to admit fresh Air to them every Day. In this Bed they may remain until the End of *September*, when they must be placed in the Bark-stove, where during the Winter Season they should be kept in a temperate Heat, and must be often refreshed with Water; but it must not be given to them in large Quantities at this Season.

As these Plants increase in Bulk, they should be placed in larger Pots; but

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but you must be very careful not to over-pot them, which will cause them to decline, and if not timely remedied, will destroy them. In Summer they should have a large Share of fresh Air in warm Weather, but they must not be placed in the open Air; for if they are not constantly preserved from the Cold, it will destroy them in a short time. If these Directions are duly observed, they will make great Progress, and in a few Years will produce Flowers.

BRYONIA; Briony.

The *Species* omitted in the former Volumes, are;

1. BRYONIA *Africana glabra, foliis in profundas lacinias divisis, flore luteo.* Olden. Smooth African Briony, with deep-cut Leaves, and yellow Flowers.

2. BRYONIA *Americana, olive fructu rubro.* Plum. Cat. American Briony, with a red olive-shaped Fruit.

3. BRYONIA *Africana, fructu variegato.* Hort. Elth. African Briony, with a variegated Fruit.

4. BRYONIA *Africana laciniata, tuberosa radice, floribus herbaceis.* Par. Bat. African cut-leaved Briony, with a tuberose Root, and herbaceous Flowers.

The first and fourth Sorts are perennial Plants, their Roots remaining several Years, but their Branches decay every Winter. These Roots must be planted in Pots filled with fresh light Earth, and in Winter must be placed in the Green-house, to protect them from Frost and great Rains, which would destroy them, if they were exposed thereto. During the Winter Season they should have a very little Water given to them; but in Summer, when they are exposed to the open Air, they must be frequently refreshed with Water in dry Weather. They will

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flower in *July*, and in warm Summers will perfect their Seeds.

The second and third Sorts are annual Plants. These must be raised in a Hot-bed early in the Spring, and when they are about three Inches high, they should be each transplanted into a small Pot filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time they should have Air let into the Bed every Day, in Proportion to the Warmth of the Season. When they are grown so large, as to ramble on the Surface of the Bed, and begin to entangle with other Plants, they should be shifted into larger Pots, and placed in the Bark-stove, where their Branches may be trailed to the Wall, or against an Espalier, that they may have Sun and Air, which is absolutely necessary for their producing Fruit. When these Plants are full of Fruit, they make a very pretty Variety in the Stove, among other Exotic Plants.

The first and fourth Sorts are also propagated from Seeds, which should be sown on a Hot-bed; and when they are fit to transplant, they should be put into Pots; and after they have taken Root, should be inured to bear the open Air by Degrees.

The Briony being Male and Female in different Plants, induced me to make some Experiments with it, to confirm my Opinion of the Necessity of the Female Plant being impregnated by the Farina of the Male, in order to render it fruitful. Accordingly I planted a Female Briony in a Garden, wherein there was no Male Plant of that Kind, nor in any of the neighbouring Parts, as I could discover; but, contrary to my Expectation, this Plant produced ripe Fruit,

Fruit, which I sowed soon after it was ripe; and the Spring following, I had a great Number of young Plants came up. The following Year I was more curious to try the Experiment, and examined all the neighbouring Parts again, to see if I could discover any Male Plants, but could not; yet the Success was the same as the former Year, and the Plants which arose from the Seeds grew very strong and vigorous. So that this and many other Experiments should be frequently repeated, and carefully examined, before we can pronounce any thing for Certainty concerning the Generation of Plants.

BUGLOSSUM; Buglofs.

The *Species* omitted in the former Volumes, are;

1. BUGLOSSUM *angustifolium majus, flore albo. C. B. P.* Greater narrow-leav'd Buglofs, with a white Flower.

2. BUGLOSSUM *angustifolium majus, flore rubro aut variegato. C. B. P.* Greater narrow-leav'd Buglofs, with a red or variegated Flower.

3. BUGLOSSUM *foliis sinuosis. C. B. P.* Buglofs with sinuated Leaves.

4. BUGLOSSUM *sylvestre majus nigrum. C. B. P.* Greater wild black Buglofs.

5. BUGLOSSUM *Creticum majus, flore cæruleo purpurante. H. R. Par.* Greater Buglofs of Candy, with a blue Flower, inclining to a purple Colour.

6. BUGLOSSUM *Lusitanicum, echii folio undulato. Inst. R. H. Portugal* Buglofs, with an undulated Vipers-buglofs-leaf.

7. BUGLOSSUM *Creticum minimum odoratum, flore vario eleganti. H. R. Par.* The least sweet-scented Candy Buglofs, with an elegant Flower of various Colours.

8. BUGLOSSUM *Creticum humifusum*

sum acaulon perenne, echii folio angustissimo. Tourn. Cor. Perennial Candy Buglofs, lying spread upon the Ground without Stalks, and with a very narrow Vipers-buglofs-leaf.

9. BUGLOSSUM *Samium frutescens, foliis rorismarini obscure virentibus, lucide hirsutis. Tourn. Cor.* Shrubby Buglofs from the Island of Samos, with Rosemary-leaves of a shining dark-green Colour, and hairy.

10. BUGLOSSUM *orientale erectum, foliis undulatis, flore amœnè cæruleo. Tourn. Cor.* Upright Eastern Buglofs, with undulated Leaves, and a Flower of a beautiful blue Colour.

11. BUGLOSSUM *orientale angustifolium altissimum. Tourn. Cor.* The tallest Eastern Buglofs, with narrow Leaves.

The first and second Sorts here mentioned are Varieties of the Garden Buglofs, which is mentioned in the former Volumes. These are preserved in Botanic Gardens for the sake of Variety, and may be cultivated in the same manner as hath been directed in the former Volumes, as may also the third, fourth, fifth and sixth Sorts, which are all hardy, and produce good Seeds in this Climate.

The seventh Sort is an annual Plant of an humble Growth, which seldom rises above three or four Inches high, but shoots out several Side-branches, which spread near the Surface of the Ground; at the Extremity of these Branches the Flowers are produced, which are of a beautiful red Colour, striped with White. This may be propagated by Seeds, which should be sown on a Bed of light fresh Earth, in the Place where it is designed to remain; because it doth not bear transplanting. When they are come up, they should be cleared from Weeds; and where they are too close together, they mult

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must be thinned, leaving them four or five Inches apart; after this they will require no farther Care, but to keep them constantly clear from Weeds. In *June* they will flower, and their Seeds will ripen in *August*, which if permitted to fall, will produce Plants in Autumn, which will abide through the Winter; and these autumnal Plants will be much stronger, and produce a greater Number of Flowers, than those which are sown in the Spring.

The eighth and ninth Sorts are perennial Plants, which are somewhat tenderer than either of the former. These are propagated by Seeds, which should be sown on a warm Border of light fresh sandy Earth, early in the Spring; and when they begin to appear, you must carefully clear them from Weeds, and where they are too close to each other, you must draw out some of them, which may be transplanted into Pots filled with light fresh Earth, which may be placed under a common Hot-bed Frame in Winter, to protect them from hard Frost; for in severe Winters, most of the Plants in the open Air will be destroyed; so that, unless you have some in Shelter, you may intirely lose the Kinds. Those which are left in the Border where they were sown, should be thinned, so as to leave them about eighteen Inches asunder, and must be constantly kept clean from Weeds, which is all the Culture they will require. The second Year they will produce Flowers and Seeds, but will continue several Years after, especially if they are in a dry rubbishy Soil, which is poor; for in a moist rich Earth they will grow very luxuriant in Summer, but are generally destroyed with the first Approach of Winter. These generally send forth Tap-roots, which run very deep in the Ground; there-

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fore will not bear transplanting well, when they have acquired much Strength. The eighth Sort is a very low spreading Plant, and should be allowed more room than the ninth, which grows upright, and becomes shrubby.

The tenth and eleventh Sorts are biennial Plants, which seldom abide after they have perfected their Seeds, which is usually the second Year after they were sown. They are propagated by Seeds, in the same manner as the common Bugloss; but should have a warmer Situation, and a drier Soil, otherwise they will not live through the Winter in this Climate: therefore it will be proper to plant a few of these into Pots while they are young, that they may be sheltered under a common Frame in Winter; and if, the Spring following, they are shaken out of the Pots carefully, so as to preserve the Earth about their Roots, and planted in a Bed of fresh Earth, they will grow much stronger, and produce a greater Number of Flowers, than if they remain in the Pots. But these having Tap-roots, will not bear transplanting any better than the two former Sorts.

BUGULA; Bugle.

The Characters are;

It hath a Flower consisting of one Leaf, with one Lip divided into three Parts, the Middle of which is split into two: the Place of the under Lip is supplied by small Teeth. Out of the Flower-cup rises the Pointal, fixed like a Nail into the hinder Part of the Flower, and attended, as it were, by four Embryo's, which afterwards become so many oblong Seeds, shut up in a Husk, which before was the Flower-cup. To these Notes may be added, That the Flowers are placed in Whorles round the Stalks.

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The Species are ;

1. BUGULA. *Dod. pempt.* Common Bugle.

2. BUGULA *flore cinereo vel albo.* *Inst. R. H.* Bugle with a white or ash-coloured Flower.

3. BUGULA *Alpina maxima.* *Inst. R. H.* The greatest Bugle of the Alps.

4. BUGULA *sylvestris villosa, flore cæruleo.* *Inst. R. H.* Hairy Wood Bugle, with a blue Flower.

5. BUGULA *sylvestris villosa, flore suave-rubente.* *Inst. R. H.* Hairy Wood Bugle, with a fine red Flower.

6. BUGULA *sylvestris villosa, flore albo.* *Inst. R. H.* Hairy Wood Bugle, with a white Flower.

7. BUGULA *Samia verna, boraginifolia, flore inverso, & cæruleo flavescente.* *Tourn. Cor.* Samian Spring Bugle, with a borage Leaf, and an inverted Flower of a yellowish blue Colour.

8. BUGULA *orientalis villosa, flore inverso cæruleo, albâ maculâ notato.* *Tourn. Cor.* Hairy Eastern Bugle, with an inverted blue Flower, spotted with White.

9. BUGULA *orientalis villosa, flore inverso candido, cum oris purpureis.* *Tourn. Cor.* Hairy Eastern Bugle, with an inverted white Flower, edged with Purple.

10. BUGULA *orientalis, flore ex violaceo purpurascente.* *Tourn. Cor.* Eastern Bugle, with a purplish violet-coloured Flower.

11. BUGULA *orientalis longifolia, flore majore intensè cæruleo.* *Tourn. Cor.* Eastern Bugle, with a long Leaf, and a larger Flower, of an intense blue Colour.

The first and second Sorts grow wild in moist Woods and Meadows in most Parts of England, and continue in Flower from May to September. These propagate themselves

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greatly by their creeping Stalks, which send forth Roots at every Joint; so that, where they have room to spread, they will make a great Increase; but they are seldom preserved in Gardens.

The Bugle is greatly esteemed as a vulnerary Herb, and is used both internally and externally; it enters as an Ingredient into the vulnerary Decoctions of the Surgeons, and is commended, externally applied to Ulcers.

The third, fourth, fifth and sixth Sorts, are preserved in Botanic Gardens for the sake of Variety: these are very hardy Plants, and propagate greatly by their trailing Stalks, as the common Sort. They must have a moist Soil, and a shady Situation, where they will thrive exceedingly, without any other Culture, but to keep them clear from Weeds.

The seventh, eighth, ninth, tenth and eleventh Sorts, were discovered by Dr. Tournefort in the *Levant*, who sent their Seeds to the Royal Garden at *Paris*, where they were propagated first in *Europe*, and from thence several other Gardens have been supplied with them. They may be propagated by Seeds, which should be sown on a shady Border, and a light moist Soil, early in the Spring; and when the Plants begin to appear, they should be carefully cleared from Weeds, and in dry Weather must be frequently watered, otherwise they will not make any great Progress. When they have acquired Strength enough to be removed, they should be transplanted, some into Pots, and the rest into a shady moist Border, where they may remain to flower. Those which are put into Pots should have a shady Situation during the Summer Season, and must be frequently watered in dry Weather; but in Winter they should

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should be placed under a Hot-bed Frame, where they may be protected in sharp Frosts; but in mild Weather they should have as much free Air as possible, for they are so hardy as to endure the Cold of our ordinary Winters very well in the open Air without any Shelter.

These may also be multiplied by parting of their Roots in the Spring, after the manner of the Auricula; but you must be careful not to part them too small, lest you destroy them; for if each Head hath not good Roots, they seldom succeed, so that they are not to be increased very fast in this Method.

BULBOCASTANUM; Earth-Nut, or Pig-Nut.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of many Leaves, placed orbicularly, and sitting on the Empalement; which turns to a Fruit composed of small oblong smooth Seeds, which are sometimes channelled, gibbous on one Side, but plain on the other. To these Notes must be added, a fleshy tuberous Root.

The Species are;

1. **BULBOCASTANUM majus, folio apii.** C. B. P. Greater Earth-Nut, with a parsley Leaf.

2. **BULBOCASTANUM minus saxatile, peucedani folio.** Tourn. Smaller Rock Earth-Nut, with a Swines-fennel-leaf.

3. **BULBOCASTANUM majus Alpinum, pastinacæ folio.** Greater Alpine Earth-Nut, with a parsnip Leaf.

4. **BULBOCASTANUM tenuiter incisifolio, Lusitanicum.** Tourn. Portugal Earth-Nut with a fine cut Leaf.

5. **BULBOCASTANUM Creticum, radice napiformi.** Tourn. Cor. Candy Earth-Nut, with a navew Root.

6. **BULBOCASTANUM Creticum, ferulæ folio, semine oblongo.** Tourn.

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Cor. Candy Earth-Nut, with a Giant-fennel-leaf, and oblong Seeds.

The first Sort is very common in shady Woods and Pastures in divers Parts of *England*: it rises early in the Spring, and flowers in *May*. In *July* the Seeds are ripe, soon after which time the green Leaves begin to decay; which is the proper Season to take up the Roots for Use, because they may be more readily found before their Leaves are quite decayed; and if they are taken up, while the Plants are in Vigour, the Roots will be small, and not near so firm. Some People dig up these Roots, and eat them raw, which taste very much like Chesnuts, and are no unpleasant Morfel; but when they are boiled, they are a very delicious Food, eaten with Butter and Pepper, and are esteemed very nourishing.

The other Sorts are not Natives of *England*, and are rarely to be found, except in Botanic Gardens, where they are preserved for the sake of Variety, more than any Beauty there is in their Appearance.

They are all very hardy Plants in respect to Cold, and may be easily propagated by sowing of their Seeds on a moist shady Border, soon after they are ripe (for if they are kept out of the Ground till Spring, they seldom succeed so well as when they are sown in Autumn). When they appear in the Spring, they must be carefully cleared from Weeds, and where they are too near, they should be thinned, so as to leave them three or four Inches asunder; after this they will require no other Culture, but to keep them clear from Weeds; for they do not bear transplanting, but should be sown where they are to remain. The next Autumn the Roots will be fit for Use, and will continue good all the Winter, till they

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they shoot up their Stems in the Spring for Seed, after which time they are tough, and not fit for eating.

BUPHTHALMUM; Ox-Eye.

The *Species* omitted in the former Volumes, are;

1. **BUPHTHALMUM** *tanacetimineris folio incano, flore sulphureo amplissimo. Boerb. Ind.* Ox-Eye with hoary Tansy-leaves, and large sulphur-coloured Flowers.

2. **BUPHTHALMUM** *Creticum, cotulae folio. Breyn. Cent.* Ox-Eye from Crete, with a May-weed-leaf.

The first Sort was sent from *Austria* to the Learned Dr. *Boerhaave* at *Leyden*; this is so nearly akin to the two Eastern Sorts, as not to be distinguished therefrom but by its hoary Leaves, and the Colour of the Flower. It must be treated in the same manner as hath been directed for them.

The second Sort is an annual Plant; this is propagated from Seeds, which should be sown on a Bed of light fresh Earth; and when the Plants are come up two Inches high, they should be transplanted where they are to remain in order to flower, where they must be allowed at least a Foot to spread their Branches. They require no other Care but to keep them clear from Weeds; in *July* they will flower, and in Autumn they perfect their Seeds. Some Botanic Authors have mentioned three or four Varieties of this Plant, but as they are accidental, and do all arise from the same Seed, it is not worth while to enumerate them.

BUPLEURUM; Hare's-Ear.

The *Species* omitted in the former Volumes, are;

1. **BUPLEURUM** *folio rigido. C. B. P.* Stiff-leav'd Hare's Ear.

2. **BUPLEURUM** *folio subrotundo,*

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five vulgatissimum. Tourn. The most common round-leav'd Hare's Ear.

3. **BUPLEURUM** *annuum angustifolium. Bot. Monsp.* Narrow-leav'd annual Hare's-Ear.

4. **BUPLEURUM** *annuum minimum angustifolium. H. R. Par.* The least narrow-leav'd annual Hare's-Ear.

5. **BUPLEURUM** *angustissimo folio. C. B. P.* Very narrow-leav'd Hare's-Ear.

6. **BUPLEURUM** *perfoliatum rotundifolium annuum. Tourn.* Annual round-leav'd Hare's-Ear, commonly called Thorough-wax.

7. **BUPLEURUM** *perfoliatum longifolium annuum. Tourn.* Annual long-leav'd perfoliated Hare's-Ear.

8. **BUPLEURUM** *montanum latifolium. Tourn.* Broad-leav'd mountain Hare's-Ear.

9. **BUPLEURUM** *montanum, flosculis exiguis. Tourn.* Mountain Hare's-Ear, with small Flowers.

10. **BUPLEURUM** *Alpinum latifolium minus. Tourn.* Smaller broad-leav'd Hare's-Ear of the *Alps*.

11. **BUPLEURUM** *Alpinum angustifolium majus. Tourn.* Greater narrow-leav'd Hare's-Ear of the *Alps*.

12. **BUPLEURUM** *Alpinum angustifolium minus. Tourn.* Smaller narrow-leav'd Hare's-Ear of the *Alps*.

13. **BUPLEURUM** *montanum, gramineo folio. Tourn.* Mountain Hare's-Ear, with a grass Leaf.

14. **BUPLEURUM** *Hispanicum arborescens, gramineo folio. Tourn.* Spanish Tree Hare's-Ear, with a grass Leaf.

15. **BUPLEURUM** *Hispanicum fruticosum aculeatum, gramineo folio. Tourn.* Prickly Spanish Shrub Hare's-Ear, with a grass Leaf.

16. **BUPLEURUM** *Lusitanicum, gramineo longiori & rigidissimo folio. Tourn.* Portugal Hare's-Ear, with a long rigid grass Leaf.

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17. *BUPLEURUM Orientale angustifolium, semine longiori. Tourn. Cor.* Narrow-leav'd Eastern Hare's Ear, with a longer Seed.

The fifth and sixth Sorts are Natives of *England*, and grow on cultivated Places amongst the Corn in several Counties. The sixth Sort is placed amongst the medicinal Plants in the College Dispensatory, but is rarely used, though it has been formerly esteemed as a vulnerary Herb.

All these Sorts (excepting the fourteenth and fifteenth) are biennial Plants, which are extremely hardy, and may be propagated by sowing of their Seeds in Autumn, upon a Bed of fresh Earth, in almost any Situation, but they thrive best in the Shade. When they are come up, they should be thinned where they come up too thick, and cleared from Weeds, which is all the Culture these Plants require; for if they are permitted to shed their Seeds, they will come up, and maintain themselves without any Care.

The fourteenth and fifteenth Sorts are perennial Plants, which rise to the Height of six or seven Feet. These may be propagated by sowing their Seeds on a shady Border in Autumn, and when the Plants begin to appear, they should be cleared from Weeds, and in dry Weather they must be watered, which will greatly promote their Growth. When they are two Inches high, they should be transplanted into a Border at about six or eight Inches Distance, observing to water and shade them until they have taken new Root; after which time they will require no farther Care, but to keep them clear from Weeds, and in very dry Weather to refresh them now and then with a little Water. In this Bed they may remain until the Beginning of *September*, when they should

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be carefully taken up, with a Ball of Earth to their Roots, and some of them planted amongst Shrubs in small Wilderness Quarters, where they will add to the Variety; but there should be a few planted into Pots, that they may be placed under a Frame in Winter, to shelter them from hard Frosts, which will often destroy them while they are young; but when they have acquir'd Strength, they will endure the Cold of our ordinary Winters very well.

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CAAPEBA.

This is an *American* Name for this Plant; but at present we have no *English* Name for it.

The Characters are:

It hath a Rose-flower, consisting of four Leaves, which are placed orbicularly, but are sterile; from the Middle arises the Pointal, which is plain, round, and umbilicated. The Embryo's grow at a separate Distance on the same Plants, which afterward become soft spherical Berries, including rough Seeds.

The Species are;

1. CAAPEBA folio orbiculari & umbilicato laevi. Plum. Nov. Gen. Caapeba with a round umbilicated Leaf.

2. CAAPEBA folio orbiculari umbilicato tomentoso. Plum. Nov. Gen. Caapeba with a round woolly umbilicated Leaf.

3. CAAPEBA folio orbiculari non umbilicato. Plum. Nov. Gen. Caapeba with a round Leaf not umbilicated.

These Plants are Natives of the warmest Parts of *America*, where they

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they twist themselves round whatever Trees or Shrubs grow near them, and sometimes rise to the Height of six or seven Feet. They are propagated by Seeds, which should be sown in Pots filled with fresh light Earth, early in the Spring. These Pots must be plunged into a moderate Hot-bed of Tanners Bark, and must be frequently refreshed with Water; when the Plants are come up about an Inch high, they should be transplanted into small Pots filled with light rich Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken new Root; after which time the Glasses should be raised in warm Weather every Day, to admit fresh Air to them, and they must be frequently refreshed with Water. During the Summer Season they may remain in the Hot-bed, but at *Michaelmas* they must be removed into the Bark-stove, where they should have a moderate Degree of Heat, and must be frequently refreshed with Water. The second Year some of the strongest Plants will flower, and will continue several Years after.

CACALIA.

This Plant hath no *English* Name.

The *Characters* are;

It hath a flosculous Flower, consisting of many Petals, divided into four Parts, sitting on the Embryo, and contained in an almost cylindrical Empalement. The Embryo afterward becomes a Seed, furnished with Down.

The *Species* are;

1. *CACALIA tomentosa*. C. B. P. Woolly Cacalia.

2. *CACALIA foliis crassis hirsutis*. C. B. P. Cacalia with thick hairy Leaves.

3. *CACALIA foliis cutaneis acutioribus & glabris*. C. B. P. Cacalia with smooth-pointed Leaves.

4. *CACALIA Pyrenaica, alliaria folio*. Tourn. Pyrenean Cacalia, with an Alliaria-leaf.

5. *CACALIA Alpina, foliis utrinque denso & candidissimo tomento obsitis*. Tourn. Cacalia of the Alps, whose Leaves are covered on both Sides with a thick white Down.

6. *CACALIA Virginiana glabra, foliis deltoidibus sinuatis subtus glaucis*. Moris. Smooth Virginian Cacalia, with sinuated Leaves, which are of a sea-green Colour on their Underside.

7. *CACALIA foliis rotundioribus, ad caulem sessilibus*. Mor. Cacalia with round Leaves sitting close to the Stalk.

These Plants do most of them grow wild on the mountainous Parts of *Austria*, the Alps and Pyrenean Mountains, from whence they have been obtained by some curious Botanists, who preserve them in their Gardens for the sake of Variety. The sixth Sort was found in *Virginia*, from whence it was brought to *Europe*.

They are all of them very hardy Plants in respect to Cold; therefore they must have a cool shady Situation, and should be planted in a strong fresh Earth, which has not been dunged. They may be propagated by parting of their Roots in Autumn; and require no other Culture but to keep them clear from Weeds, and in very dry Weather to water them two or three times a Week.

They may also be propagated by Seeds, but these should be sown as soon as possible after they are ripe; for they will not grow, if they are kept long out of the Ground. These Seeds should be sown in Pots filled with fresh loamy Earth, and placed in a shady Situation. In the Spring the Plants will appear, when they must be carefully weeded, and in dry Weather

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Weather should be frequently refreshed with Water, which will greatly forward the Plants in their Growth. In Autumn they must be transplanted into a shady Border, at about a Foot apart, where they may remain to flower.

CACAO; The Chocolate-Nut.

The Characters are;

It hath a Rose-flower, consisting of a great Number of Petals, from whose many-leav'd Empalement arises the Pointal, which is a Tube cut into many Parts, which afterward becomes a Fruit shaped somewhat like a Cucumber, and deeply furrowed, in which are contained several Seeds, collected into an oblong Heap, and are slit down somewhat like Almonds.

We have but one Species of this Plant; which is,

CACAO. *Clus. Exot.* The Chocolate-Nut Tree.

This Tree is a Native of *America*, and is found in great Plenty in several Places between the Tropics, but particularly at *Carraca* and *Carthage*, on the River *Amazons*, in the Isthmus of *Darien*, at *Honduras*, *Guatemala*, and *Nicaragua*. At all these Places it grows wild without Culture, but it is cultivated in many of the Islands which are possessed by the *French* and *Spaniards*, and was formerly planted in some of the Islands which are in the Possession of the *English*.

In order to cultivate this Plant in *Europe*, by way of Curiosity, it will be necessary to have the Nuts planted into Boxes of Earth (in the Countries where they grow) soon after they are ripe (because, if the Nuts are sent over, they will lose their growing Quality before they arrive). These Boxes should be placed in a shady Situation, and must be frequently watered, in order to forward the Vegetation of the

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Nuts. In about a Fortnight after the Nuts are planted, the Plants will begin to appear above Ground; when they should be carefully watered in dry Weather, and protected from the violent Heat of the Sun, which is very injurious to them, especially while they are young; they should also be kept very clear from Weeds, which, if suffered to grow in the Boxes, will soon over-bear the Plants, and destroy them: When they are strong enough to transport, they should be shipped, and placed where they may be screened from strong Winds, salt Water, and the violent Heat of the Sun. During their Passage they must be frequently refreshed with Water, but it must not be given to them in great Quantities, lest it rot the tender Fibres of their Roots, which will destroy them; and when they come into a cool Latitude, they must be carefully protected from the Cold, when they will not require so frequently to be watered; for in a moderate Degree of Heat, if they have gentle Waterings twice a Week, it will be sufficient.

When the Plants arrive in *England*, they should be carefully taken out of the Boxes, and each transplanted into a separate Pot filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, being careful to cover the Glasses in the Heat of the Day, to screen the Plants from the Sun; they must also be frequently watered, but it must be done with Caution, not to rot their Roots; in this Hot-bed the Plants may remain till *Michaelmas*, when they must be removed into the Bark-stove, and plunged into the Tan, in the warmest Part of the Stove. During the Winter Season the Plants must be frequently refreshed with Water, but it must be given to them in small Quantities; but in

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Summer they will require a more plentiful Share. These Plants are too tender to live in the open Air in this Country, even in the hottest Season of the Year; wherefore they must constantly remain in the Bark-stove, observing in very warm Weather to let in a large Share of fresh Air to them, and in Winter to keep them very warm. As the Plants increase in Bulk, they should be shifted into larger Pots; in doing of which there must be particular Care taken not to tear or bruise their Roots, which often kills the Plants, nor must they be placed in Pots too large, because that is a slow, but sure Death to them. The Leaves of these Plants must be frequently washed, to clear them from Filth, which they are subject to contract by remaining constantly in the House; and this becomes a Harbour for small Insects, which will infest the Plants, and destroy them, if they are not timely washed off. If these Rules are duly observed, they will thrive very well, and may produce Flowers in this Climate; but it will be very difficult to obtain Fruit from them; for, being of a very tender Nature, they are subject to many Accidents in a cold Country.

CACHRYS.

We have no *English* Name for this Plant.

The *Characters* are;

The Flowers grow on an Umbel, which consist of many Petals ranged circularly, and expand in form of a Rose; these rest on the Empalement, which turns to a Fruit composed of two Parts, which are half oval, sometimes smooth, and sometimes rough and chanelled, containing Seeds which resemble Barley-corns.

The *Species* are;

1. CACHRYS *semine fungoso sulcato aspero, foliis ferulaceis.* Mor.

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Umb. Cachrys with a fungous furrowed rough Seed, and Fenel-giant-leaves.

2. CACHRYS *semine fungoso sulcato aspero, foliis peucedani latiusculis.* Mor. *Umb.* Cachrys with a fungous furrowed rough Seed, and broadish Hogs-fenel-leaves.

3. CACHRYS *semine fungoso sulcato plano majore, foliis peucedani angustis.* Mor. *Hist.* Cachrys with larger plain furrow'd fungous Seed, and narrow Hogs-fenel-leaves.

4. CACHRYS *semine fungoso sulcato plano minore, foliis peucedani.* Mor. *Umb.* Cachrys with smaller plain furrow'd fungous Seed, and Hogs-fenel-leaves.

5. CACHRYS *Hungarica, panacis folio.* Tourn. Hungarian Cachrys, with an All-heal-leaf.

6. CACHRYS *foliis peucedani, semine fungoso sulcato aspero minori.* Tourn. Cachrys with Hogs-fenel-leaves, and small rough fungous Seed.

7. CACHRYS *Cretica, angelice folio, asphodeli radice.* Tourn. Candy Cachrys, with an Angelica-leaf, and Asphodel-root.

8. CACHRYS *Orientalis, ferule folio, fructu alato plano.* Tourn. Cor. Eastern Cachrys, with a Fenel-giant-leaf, and a plain winged Seed.

These Plants are all propagated by Seeds, which should be sown soon after they are ripe; for if they are kept out of the Ground until the following Spring, they seldom grow; and when they do succeed, they never come up until the Spring after; so that by sowing them in Autumn a whole Year is saved, and the Seeds seldom miscarry. These Seeds should be sown on a shady Border, where the Plants are to remain; for the Plants, having long Tap-roots, do not bear transplanting so well as many other Kinds: The Distance to be observed for the sowing

ing of their Seeds should be two Feet apart. If each Kind is sown in a Drill, when the Plants are come up, they may be thinned, leaving two or three of the most promising Plants of each Kind to remain. They will begin to appear early in *April*, when they must be carefully cleared from Weeds, and in dry Weather they should be watered gently, which will greatly promote their Growth the first Year; after which time they will require no farther Care, but to keep them clean from Weeds, and every Spring to dig the Ground carefully between them.

These Plants decay to the Ground every Autumn, and come up again in the Spring; they commonly flower in the Beginning of *May*, and their Seeds are ripe in *August*; their Roots sometimes run down three or four Feet deep in the Earth, provided the Soil be light, and are often as large as Parsnips: They will continue many Years, and if the Soil is moist and rich, they will annually produce good Seeds; but when they grow on a dry Soil, the Flowers commonly fall away, and are not succeeded by Seeds.

There is but little to be said of the Uses of this Genus of Plants: The *Hungarians* in the Neighbourhood of *Erlaw*, as also those who border on *Transylvania*, *Servia*, &c. eat the Root of the fifth Species in a Scarcity of Corn for Want of Bread.

CÆSALPINA.

This Plant was so named by Father Plumier, who discovered it in America, in Honour to Andrea Cæsalpinus, who was an eminent Botanist, and one of the first Writers on a Method of classing Plants.

We have no *English* Name for this Plant.

The *Characters* are;

It hath a Flower of an anomalous Figure, consisting of one Leaf, which

is divided into four unequal Parts; the upper Part is large, and hollowed like a Spoon. From the Bottom of the Flower arises the Pointal, amongst many incurved Stamina, which afterwards becomes a Pod, including oblong Seeds.

We have but one Sort of this Plant, viz.

CÆSALPINA *polyphylla, aculeis horrida.* Plum. Nov. Gen. Many-leav'd Cæsalpina, with large Thorns.

This Plant is a Native of *America*, where it rises to the Height of fourteen or sixteen Feet, the Trunk and Branches being arm'd with very strong Thorns, so that it is difficult to pass where they are in Plenty. It was found at *Campechy* by the late Dr. *Houffoun*, who sent the Seeds into *England*, from which some of these Plants were raised.

This Plant is propagated by Seeds, which should be sown in small Pots filled with light rich Earth early in the Spring, and plunged into a Hot-bed of Tanners Bark, observing to water the Earth as often as it appears dry, in order to promote the Vegetation of the Seeds; and if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats, to keep the Bed in a moderate Warmth: In about two Months after, the Plants will begin to appear, when they must be carefully clear'd from Weeds, and frequently refreshed with Water; and in warm Weather the Glasses of the Hot-bed should be raised in the middle of the Day, to admit fresh Air to the Plants, which will greatly strengthen them. When they are about three Inches high, they should be carefully taken out of the Pots, and each transplanted into a separate small Pot filled with light fresh Earth, and plunged into the Hot-bed again, observing to water and

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screen them from the Heat of the Sun, until they have taken new Root; after which time the Glasses of the Hot-bed should be raised every Day, in Proportion to the Heat of the Weather, to admit fresh Air to the Plants; and they must be duly watered, and kept clear from Weeds; in this Hot-bed the Plants may remain until they touch the Glasses with their Tops, when they will be in Danger of being scorched by the Sun, which will retard their Growth: therefore, whenever they are grown so tall as to touch the Glasses with their Tops, they should be removed into the Stove, and plunged into the Bark-bed, where they may have room to grow. They being tender, should always be kept in the Bark-stove, and have a moderate Share of Heat in Winter, and being placed amongst other tender Exotic Plants of the same Country, will afford an agreeable Variety.

CAINITO. [This is the *American* Name, by which the *Indians* called this Tree, according to *Oviedo*] Star-Apple, *vulgo*.

The Characters are;

It hath an open bell-shaped Flower, consisting of one Leaf, and cut into several Segments towards the Top; from whose Cup arises the Pointal, which afterward becomes a globular or olive-shaped soft fleshy Fruit, inclosing a Stone of the same Shape.

The Species are;

1. CAINITO *folio subtus aureo, fructu maliformi. Plum. Nov. Gen.*
The Star-Apple, *vulgo*.

2. CAINITO *folio subtus aureo, fructu olivæformi. Plum. Nov. Gen.*
Cainito with olive-shaped Fruit.

These Plants grow in the warmest Parts of *America*, where the Fruit of the first Sort is eaten by way of Dessert. This Tree grows to the Height of thirty or forty Feet, and

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has a strait smooth Stem, regularly beset with Branches, which are adorned with Leaves of a shining green Colour on their upper Sides, but of a russet Colour underneath; from the setting on of the Footstalks of the Leaves come out the Flowers, which have no great Beauty, but are succeed by the Fruit, which is about the Size of a large Apple, and of the same Shape.

The other Sort is not so common in our Settlements in *America*, but grows very plentifully in the *Spanish West-Indies*, from whence I have received Seeds of this and the former Kind.

They are both propagated by Seeds, which should be sown in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to refresh the Earth often with Water, in order to promote the Vegetation of the Seeds. When the Plants are come up three Inches high, they should be shaken out of the Pots, and carefully parted; then put each into a separate small Pot filled with fresh Earth, and plunge them into the Hot-bed again, being careful to shade the Glasses until the Plants have taken new Root; after which time they should have Air and Water in Proportion to the Warmth of the Season. When the Plants have grown so much as that their Roots are confin'd by these Pots, they should be shifted into larger, always observing to preserve a Ball of Earth to their Roots.

These Plants will not bear the Cold of our Air in Summer, but must always be preserved in the Bark-stove, and treated after the manner directed for the Coffee-tree; with this Management the Plants will thrive exceedingly, and it is hoped, will soon produce Flowers in *England*.

CAKILE,

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CAKILE, Sea-Rocket.

The Characters are ;

It hath a cross-shaped Flower, consisting of four Petals, from whose Cup arises the Pointal, which afterwards becomes a Fruit, resembling the Point of a Spear, and is jointed ; in each of which Divisions is lodged one Seed, which is for the most part oblong.

The Species are ;

1. *CAKILE maritima, ampliore folio. T. Cor.* Sea-Rocket with a larger Leaf.

2. *CAKILE maritima, angustiore folio. T. Cor.* Sea-Rocket with a narrow Leaf.

3. *CAKILE Græca arvensis, filiquâ striatâ brevi. T. Cor.* Greek Sea-Rocket, with a short striated Pod.

4. *CAKILE Orientalis, fructu minimo verrucoso. T. Cor.* Eastern Sea-Rocket, with a small warted Fruit.

The two first Sorts grow wild in divers Parts of *Europe* on the Sea-shore, where the Salt-water generally flows: The second Sort is pretty common in *England*, but the first hath not been found wild in this Country: The third and fourth Sorts were discovered by *Dr. Tournefort*, who sent their Seeds to the Royal Garden at *Paris*.

They are all annual Plants: their Seeds should be sown in Autumn, soon after they are ripe, in the Place where they should remain, for they will not bear transplanting well ; when the Plants are come up, they should be kept clear from Weeds, and where they are too close, they must be thinned, so as to leave them four or five Inches asunder, which is all the Culture they require ; in *June* they will flower, and their Seeds will ripen in *August*. There is no Beauty or Use in these Plants at present known, but they are preserved in Botanic Gardens for Variety.

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CALABA, Indian Mastic-Tree.

The Characters are ;

It hath a rosaceous Flower, consisting of several Petals, which are placed in a circular Order, from whose Flower-cup rises the Pointal, which afterwards becomes a spherical fleshy Fruit, including a Nut of the same Form.

We know but one Sort of this Plant, which is,

CALABA folio citrii splendente. Plum. Nov. Gen. 39. Indian Mastic-tree, with a shining citron Leaf.

This Tree grows to a great Magnitude in the warm Parts of *America*, where it is a Native: From the Trunk and Branches there issues out a clear Gum, somewhat like Mastic, from whence it received its Name, the Gum being used in those Countries as Mastic.

At present this Tree is pretty rare in *England*, it being so tender as not to bear the open Air ; so that it must be preserved in Stoves, with the most tender Exotic Plants. It is propagated by the Nuts, which are frequently brought from *America*: these should be planted in small Pots filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to water the Pots frequently, to forward the Vegetation of the Nuts, which having hard Shells, are pretty long before they break their Covers, unless they have a good Share of Heat and Moisture. When the Plants are come up about two Inches high, they should be carefully transplanted, each into a separate small Pot filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken new Root ; after which time they should have Air admitted to them in Proportion to the Heat of the Weather and the Bed in which

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they are placed, and they must be frequently watered in warm Weather. In this Bed they may remain during the Summer Season, but at *Michaelmas* they should be removed into the Bark-stove, and placed in a warm Situation. During the Winter Season they will require Water pretty often, but it should not be given to them in large Quantities, especially in cold Weather, lest it rot the Fibres of their Roots.

The Spring following the Plants should be shaken out of the small Pots, in which they were placed, and transplanted into Pots of a larger Size, observing to pare off all the decay'd Fibres, and fill the Pots with the above-mentioned fresh Earth, and plunge them into the Hot-bed again, taking care to water them more frequently, and give them a greater Share of Air as the Weather increases warm: The other Management of these Plants being the same as hath been directed for the Coffee-tree, and some other tender Exotic Trees, it need not be repeated.

CAMPHORATA, Stinking Ground-pine.

The Species are;

1. CAMPHORATA *hirsuta*. C. B. Hairy stinking Ground-pine.

2. CAMPHORATA *glabra*. C. B. Smooth stinking Ground-pine.

These Plants grow plentifully on sandy and rocky Soils near *Montpelier*, as also in *Italy* and *Spain*; but are seldom cultivated in Gardens.

The first Sort is reckoned amongst the officinal Plants in the College Dispensatory; but at present is seldom used in Medicine.

They may be propagated by Slips, which should be planted in a shady Border in *April*, just as the Plants begin to shoot, observing to water them frequently; and when the Slips have taken good Root, they may be

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transplanted (with a Ball of Earth to their Roots) into a warm dry Border, or else into Pots, that they may be sheltered in severe Frosts, otherwise they will be destroyed.

They may also be propagated by Seed; but as they seldom perfect their Seeds in this Country, so the other Method is always used to propagate them here.

CANNABINA, Bastard-Hemp.

The Characters are;

It is a Genus, whose Flowers have no Petals, but consist of a Number of Chives, and are barren: for the Seed is produced on Female Plants, which have no visible Flower; but have membranaceous Seed-vessels, which inclose triangular Seeds, which are for the most part oblong.

The Species are;

1. CANNABINA *Cretica fructifera*. Tourn. Cor. Fruitful Bastard-Hemp of Candy.

2. CANNABINA *Cretica florifera*. Tourn. Cor. Male Bastard-Hemp of Candy.

These two Plants both arise from the same Seeds (as is the Case with the Male and Female Plants of the common Hemp). They are Natives of the *Archipelago*, from whence Dr. Tournefort sent the Seeds to the Royal Garden at *Paris*. They are hardy Plants, which may be propagated by sowing their Seeds on a Bed of light fresh Earth in the Spring; and when the Plants are come up two Inches high, they should be carefully transplanted into a Bed of fresh Earth, observing to shade and water them, until they have taken new Root; after which time they will require no farther Culture, but to keep them clear from Weeds. At *Michaelmas* the Plants will die down to their Roots; so they should remain in these Beds until the Beginning of *March*, at which

which time they should be transplanted out where they are to remain; where they should be placed at a good Distance from each other, or any other Plants; for they grow pretty large, and will form large Heads, if they are suffered to remain many Years; therefore they should be planted at least three Feet asunder.

In the native Places of their Growth they often rise to the Height of ten or twelve Feet; but in *England* they seldom grow to more than half that Size: but when their Roots are very strong, they will send forth six or eight Stems from each Root, so that they will occupy a large Space of Ground; but as there is no great Beauty in these Plants, there should be but few of them admitted for Variety.

CAPPARIS, the Caper-tree.

The *Species* omitted in the former Volumes, are;

1. CAPPARIS *spinosa*, *fructu majore*, *folio rotundo*. C. B. P. Prickly round-leaved Caper, with a large Fruit.

2. CAPPARIS *folio acuto*. C. B. P. Sharp-leaved Caper.

3. CAPPARIS *Americana arborescens*, *lauri folio*, *fructu longissimo*. Plum. Cat. American Tree-caper, with a Bay-leaf, and a long Fruit.

4. CAPPARIS *alia arborescens*, *lauri foliis*, *fructu oblongo ovato*. Plum. Cat. American Tree-caper, with a Bay-leaf, and an oval Fruit.

5. CAPPARIS *Americana arborescens*, *lauro-cerasi foliis*, *fructu oblongo*. American Tree-caper, with Laurel-leaves, and an oblong Fruit.

The first and second Sorts are common in the South of *France*, and in *Italy*, where they grow wild on the Walls, and old Ruins. At *Toulon* they cultivate these Plants upon the Walls, by sowing of their Seeds in the Holes of the Stone Walls, about

three or four Feet from the Ground; so that the Roots of the Plants penetrate into the Joints of the Walls, and from thence draw their Nourishment. In *England* it is very difficult to preserve these Plants, especially if they are planted in Earth; for they thrive much better in Rubbish: so that where any Person is desirous to cultivate them, they should be planted in Pots filled with Lime-rubbish and Sand, and placed in a moderate Hot-bed, to forward their making new Roots; after which time they must be sheltered from severe Frost, which will destroy them. The Stumps of these Plants are generally brought over in Plenty from *Italy* every Year, by the Persons who bring over Orange-trees and Jasmines; and may be purchased from them at a moderate Price, which is far the easiest Method of being furnished with these Plants; for the Seeds are not easily obtained from abroad, nor do they succeed very well with us. Although these Plants require Shelter, when planted in Pots; yet they will endure the severest Cold of our Winters, if growing in a Wall.

The third, fourth and fifth Sorts, are Natives of *America*; the third and fourth were discovered by Father Plumier in the *French Islands*; but the sixth was found by Mr. Robert Millar, near *Carthagena* in the *Spanish West-Indies*, from whence he also sent me the other two Kinds. These three Sorts may be propagated by Seeds, which should be sown in Pots filled with light sandy Earth, and plunged into a Hot-bed of Tan-ners Bark, observing to water the Earth frequently, to forward the Vegetation of the Seed. When the Plants are come up, they should be each transplanted into a small Pot filled with light sandy Earth, and plunged

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plunged into the Hot-bed again, observing to screen them from the Sun, until they have taken Root; after which time they must have Air and Water in Proportion to the Warmth of the Season. When the Plants have filled these small Pots with their Roots, they should be carefully taken out, and their Roots trimmed, and put into larger Pots, and plunged into the Hot-bed again. In Winter these Plants must be removed into the Stove, and placed in the Bark-bed, where they should be treated after the manner directed for the Guajava; with which Management these Plants will succeed.

CARDAMINE, Ladies-smock.

The *Species* omitted in the former Volumes, are;

1. CARDAMINE *impatiens*, vulgo *Sium minus*. Ger. *Emac.* Impatient Ladies-smock.

2. CARDAMINE *impatiens altera hirsutior*. Raii *Syn.* The other rough impatient Ladies-smock.

3. CARDAMINE *flore majore, elatior*. Tourn. Taller Ladies-smock, with a larger Flower.

4. CARDAMINE *Sicula, foliis fumariæ*. Tourn. Sicilian Ladies-smock, with Fumitory-leaves.

5. CARDAMINE *montana, asari folio*. Tourn. Mountain Ladies-smock, with an Asarabacca-leaf.

6. CARDAMINE *Alpina minor, resectæ folio*. Tourn. Small Ladies-smock of the Alps, with a base wild Rocket-leaf.

7. CARDAMINE *hirsuta, chelidonii folio, flore purpurascente*. Tourn. Hairy Ladies-smock, with a Celandine-leaf, and purplish Flower.

8. CARDAMINE *glabra, chelidonii folio*. Tourn. Smooth Ladies-smock, with a Celandine-leaf.

9. CARDAMINE *Alpina prima trifolia*. Clus. The first three-leaved Ladies-smock of the Alps.

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10. CARDAMINE *Græca, chelidonii folio rarius & profundius inciso, flore albo*. Tourn. Cor. Greek Ladies-smock, with a Celandine-leaf, that has but few and deep Jags, and a white Flower.

The first and second Sorts grow wild in *England*; but are sometimes allowed a Place in Gardens for Variety-sake. When the Seeds of these Plants are ripe, the Pods burst on the first Touch, and scatter the Seeds all around. If these Plants are put in a shady Border, and permitted to shed their Seeds, they will maintain themselves without any Care.

The third Sort grows in marshy Places, and in standing Waters; therefore is rarely kept in Gardens.

The fourth Sort is not a Native of *England*, yet will endure the severest Cold of this Climate in a warm Border; where, if it is permitted to shed its Seeds, it will maintain itself without any farther Care.

The other Sorts are Natives of the Alps and Pyrenean Mountains (except the last, which was discovered by Dr. Tournefort in Greece.) They are all extremely hardy: their Seeds should be sown soon after they are ripe, in a moist shady Situation, where the Plants will soon appear, and will require no other Care, but to clear them from Weeds; and if their Seeds are permitted to scatter, the Plants will come up better, than if sown. These Varieties are preserved in Botanic Gardens, and some of them merit a Place in some shady Part of every curious Garden, for their odd manner of casting forth their Seeds on the slightest Touch, when the Pods are ripe; which often surprises Strangers, who attempt to gather the Seeds.

CARDIACA, Motherwort.

The *Species* are;

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1. *CARDIACA*. *J. B.* 3. 320.
Common Motherwort.

2. *CARDIACA flore albo*. *Tourn.*
Motherwort, with a white Flower.

3. *CARDIACA crispa*. *Raii Hist.*
Curled Motherwort.

These Plants are preserved in Botanic Gardens for the sake of Variety. The first is often found wild in *England*; but it is only near Gardens, from whence it was ejected. The second is a Variety of the first, from which it only differs in the Colour of the Flower. The third Sort differs from the two former, in having fine curled Leaves.

All these are very hardy Plants, which will sow themselves wherever they are introduced, so as to become Weeds in the Place. The Seeds of these Plants may be sown the Beginning of *March*, on almost any Soil, or in any Situation; where the Plants will come up in *April*, and, if kept clear from Weeds, will thrive exceedingly. When they are large enough to transplant, they should be removed, and planted eighteen Inches or two Feet asunder, because they will grow pretty large. If the Weather should prove dry, when they are transplanted, they should be watered, until they have taken new Root; after which time they will require no farther Care, than to keep them clear from Weeds; and the second Year they will flower, and produce ripe Seeds. The first Sort, being a medicinal Plant, is pretty much cultivated in the Physic-Gardens near *London*, from whence the Markets are supplied with the Herb. The other two Sorts are only preserved in Botanic Gardens for the sake of Variety.

CARDUUS, Thistle.

The *Species* omitted in the former Volumes, are;

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1. *CARDUUS galactites*. *J. B.* 3. 54. The milky Thistle.

2. *CARDUUS humilis alatus*, *sive Carduus Mariæ annuus*, *folio lituris obscuris notato*. *H. Cath.* Dwarf annual Ladies-thistle, with winged Stalks, and dark-spotted Leaves.

3. *CARDUUS tomentosus, acanthi folio, vulgaris*. *Tourn.* Common Cotton-thistle.

4. *CARDUUS stellatus, sive Calcitrapa*. *J. B.* Common Star-thistle.

5. *CARDUUS stellatus, sive Calcitrapa, flore albo*. *H. R. Par.* Star-thistle, with a white Flower.

6. *CARDUUS, seu Polyacantha vulgaris*. *Tourn.* The supposed true Fish-thistle.

7. *CARDUUS Creticus tomentosus, acanthi folio, flore magno purpurascente*. *Tourn. Cor.* Woolly Thistle of Candy, with an Acanthus-leaf, and a large purplish Flower.

The first Sort grows in *Spain*, *Italy*, and the South of *France*; but will not endure the Cold of our Winters, unless in a dry Soil, and a warm Situation.

The second Sort is a Native of *Sicily*; but if once planted in a Garden, and suffered to shed its Seed, will maintain its Place.

The third Sort is very common upon the Sides of dry Banks, and other uncultivated Places in divers Parts of *England*. Of this Kind there are a great Variety in *France*, *Spain*, *Italy*, and other warm Countries: many of which have been introduced into the Botanic Gardens for the sake of Variety; but are not allowed a Place in any other Gardens.

The fourth Sort is found on Dunghills, and the Sides of Banks, in several Parts of *England*. This Plant is greatly used in *France*, as a medicinal Herb; and is judged febrifugous,

brifugous, vulnerary, and aperitive : of late Years it has been introduced amongst the medicinal Plants in England; but the Virtues are not so generally known as in France, where it has been long in Use.

All these Plants delight to grow on barren uncultivated Places; wherefore whoever hath a mind to cultivate any of the Species, should sow their Seeds on a Bed of light undunged Earth in the Spring of the Year, where they are designed to remain; for they do not thrive so well when they are transplanted. When the Plants are come up, they should be thinned, so as to leave them eighteen Inches or two Feet asunder; and if they are kept clear from Weeds, it is all the Cu'ture which they will require. The second Year they will flower in June and July, and in August they will perfect their Seeds, and the Roots will soon after decay: therefore to have a Succession of these Plants, their Seeds must be sown every Year.

The sixth Sort is somewhat tenderer than the others, and should have a warmer Situation; otherwise it will be destroyed, if the Winter should prove severe. This doth not spread so much as the other Kinds; but will grow upright to the Height of four or five Feet; and having Leaves regularly placed on the Stalks, from the Ground to their Heads, makes an agreeable Appearance, and merits a Place in a Garden, for the sake of Variety.

CARLINA, The Carline Thistle.

The Characters are;

It hath for the most part a radiated Flower, from whose Disk arise many Florets, which rest upon the Embryo's; but the plain Petals, which arise from the Crown, have no Embryo's fixed to them: the Flower-cup

is large and prickly, inclosing the Embryo's. These Embryo's after-ward become Seeds, which have a Down adhering to them, and each is separated by an imbricated Leaf.

The Species are;

1. CARLINA *acaulos, magno flore albo.* C. B. Carline Thistle without Stalks, and a large white Flower.

2. CARLINA *acaulos, magno flore purpureo.* C. B. Carline Thistle without Stalks, and a large purple Flower.

3. CARLINA *sylvestris vulgaris.* Clus. Common wild Carline Thistle.

4. CARLINA *acaulos, flore magno, radice perenni, Montis Aurei.* H. R. Par. Perennial Carline Thistle, without Stalks, of Mount d'Or.

5. CARLINA *acaulos gummifera.* C. B. P. Gum-bearing Carline Thistle, without Stalks, commonly called the white Chameleon.

6. CARLINA *caulescens, magno flore albicante.* C. B. P. Stalky Carline Thistle, with a large whitish Flower.

7. CARLINA *caulescens, magno flore rubente.* C. B. P. Stalky Carline Thistle, with a large reddish Flower.

8. CARLINA *polycephalus alba.* C. B. P. Many-headed white Carline Thistle.

9. CARLINA *sylvestris, flore aureo, perennis.* H. L. Wild perennial Carline Thistle, with a golden Flower.

10. CARLINA *sylvestris minor Hispanica.* Clus. H. Lesser wild Spanish Carline Thistle.

11. CARLINA *patula, atractylidis folio & facie.* Tourn. Low-spreading Carline Thistle, with a Leaf and the Face of Distaff-thistle.

12. CARLINA *umbellata Apula.* Tourn. Umbellated Carline Thistle of Apulia.

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These Plants grow in the South of France, in Spain, and in Italy: the third Sort grows wild in England, upon chalky Hills, and on uncultivated Places.

All these Plants are preserved by the Curious in Botany, for the sake of Variety; but they are seldom introduced into other Gardens, as they are Plants of no great Beauty, nor are they of any Use, (except the fifth Sort, which is placed in the Catalogue of Simples annexed to the College Dispensatory, but is rarely ordered in Medicine) so far as I could ever discover: yet, as they are sometimes cultivated by curious Persons, it was thought proper to enumerate their several Varieties.

They may all be propagated by sowing of their Seeds in the Spring on a Bed of fresh undunged Earth, where they are designed to remain; for, as they send forth Tap-roots, they will not bear transplanting so well as most other Plants. When the Plants appear above Ground, they should be carefully weeded; and as they grow in Size, they should be thinned, where they are too close, leaving them about ten Inches or a Foot asunder. The second Year most of these Plants will flower: but, unless the Summer proves dry, they rarely produce good Seeds in England; and as most of them decay soon after they have flowered, it is pretty difficult to maintain these Plants in this Country.

CASIA, Red-berried Shrub-casia.

The Characters are;

It is Male and Female in different Plants: the Male hath Flowers consisting of many Stamina or Threads, without any Petals; these are always sterile: the Female Plants, which have no conspicuous Flower, produce spherical Berries, in which are included Nuts of the same Form.

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The Species are;

1. CASIA poetica Monspelienfium, an Theophrasti. Lob. Icon. 433. Montpellier Casia of the Poets, according to Lobelius.

2. CASIA Hispanica procerior, myrti folio. Tourn. Spanish Casia, with a Myrtle-leaf.

The first of these Plants grows in Plenty by the Road-side in Spain, and the South of France; where it rises to the Height of three Feet, and becomes shrubby. This was supposed by Lobel to be the Casia of the Poets: but it doth not well agree with the Descriptions we have of Casia; by which it should be a sweet Herb, and proper to be wrought into Garlands; the Leaves should also be inclining to white; in neither of which this Plant doth agree. There are some Authors, who suppose the Casia to be *Thymelaea lini folio* of Caspar Baubin: but it is very uncertain what Plant it was, which Virgil, in his *Georgics*, mentions under that Name; since the Epithets applied by him to the Casia, will not agree with any Plant we at present are acquainted with.

The second Sort was discovered by Dr. Tournefort in his Travels through Spain: this grows taller than the former Sort, and hath much broader Leaves.

Both these Plants may be propagated by Seeds, which should be sown in Pots or Boxes filled with fresh Earth: the Seeds should be covered about half an Inch thick with the same Earth. If they are sown in the Autumn soon after they are ripe, and the Pots or Boxes placed under a Hot-bed Frame, where they may be sheltered from hard Frosts, the Plants will come up the following Spring: but if they are kept till the Spring before they are sown, the Seeds will remain in the Ground a whole Year before

before the Plants will appear; in which Case you should place the Pots or Boxes in a shady Situation during the Heat of Summer; but in Winter they must be removed under a Hot-bed Frame, as was before directed.

When the Plants are come up, they should be kept clear from Weeds, and in dry Weather they must be constantly watered; but they should remain unremoved until the following Spring. The Pots or Boxes should be placed, during the Summer Season, where they may have the Morning Sun till Ten of the Clock, and be screened from the Sun in the Heat of the Day: but in Winter they must be placed under a Hot-bed Frame, to protect them from hard Frosts; for, while the Plants are so young, they will not endure great Cold. The following Spring, about the Beginning of *March*, these Plants should be carefully taken up out of the Seed-pots, and each planted in a separate small Pot, filled with fresh Earth, that is not over-strong; observing to water them to settle the Earth to their Roots; and if you place the Pots on a moderate Hot-bed, it will greatly forward the Plants, and be the most sure Method to preserve them, provided the Bed is not too hot, and you give them a sufficient Quantity of Air. In this Hot-bed the Plants may remain until the Beginning of *May*, when you should inure them to bear the open Air by Degrees; for about the middle of that Month, they must be removed out, and placed where they may have the Morning Sun, as was directed before.

The following Winter these Plants should be sheltered under a Hot-bed Frame again: but they must be exposed to the open Air constantly in

mild Weather; for they will require only to be protected from severe Cold. In the following Spring some of the Plants may be shaken out of the Pots, (just before they begin to shoot) and planted in the full Ground in a warm Situation; where they will endure the Cold of our ordinary Winters very well, and in a Year or two will produce their Flowers, which are sometimes succeeded by Seeds, but they are seldom ripened in this Country; but as these Plants are liable to be destroyed in very cold Winters, it will be proper to keep some Plants of each Kind in Pots, which may be sheltered from the Cold, in order to preserve the Species.

CASTOREA.

This Plant was so named by Father *Plumier*, after a famous Physician and Botanist, whose Name was *Castor Durant*.

The Characters are;

It hath a personated Flower, consisting of one Leaf, whose upper Lip (or Crest) is erect; but the Beard (or under Lip) is divided into three Parts; the middle Part is bifid: the Flower-cup afterward becomes a round fleshy Fruit, inclosing a Shell, in which are contained four angular Seeds.

The Species are;

1. *CASTOREA repens spinosa.* *Plum.* Prickly creeping Castorea.

2. *CASTOREA racemosa, flore cæruleo, fructu croceo.* *Plum.* Branching Castorea, with a blue Flower, and a saffron-coloured Fruit.

The first of these Plants hath trailing Branches, which will creep on the Ground, if they are not supported; for in the Places where it grows wild, it rambles over whatever Plants grow near it. The Branches are closely beset with Spines, somewhat like the common

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common Bramble, which render the Places of its Growth very difficult to pass.

The second Sort grows to the Height of ten or twelve Feet, and becomes woody: this sends forth many Branches, at the Extremity of which there are Bunches of blue Flowers of an agreeable Scent; which are succeeded by saffron-coloured Berries, growing in Clusters like Bunches of Currans.

These Plants are Natives of the warmest Parts of *America*, and were first discovered by Father *Plumier*, in the *French Settlements*: but my late learned Friend, Dr. *William Houstoun*, found them in *Jamaica*; from whence he sent Samples of both Kinds, with their Seeds, into *England*, from which some of these Plants were raised.

They are both propagated by Seeds, which must be procured from the Places where they grow naturally; for they seldom perfect their Seeds in this Country. These must be sown in small Pots filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water them as often as you find the Earth dry: and in the Heat of the Day, the Glasses of the Hot-bed should be raised, to let the Steam pass off; but if the Nights are cold, the Glasses should be then covered with Mats every Evening, when the Sun is gone off the Bed. In about six Weeks the Plants will begin to appear; when you should carefully clean them from Weeds, and frequently refresh them with Water; and in warm Weather they should have fresh Air admitted to them, that they may get Strength, and not draw up too weak. When the Plants are about two Inches high, they should be carefully taken up, and trans-

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planted each into a separate small Pot filled with fresh light Earth, and plunged into the Hot-bed again; then water them, to settle the Earth to their Roots; and in the Day-time the Glasses should be shaded with Mats, until the Plants have taken Root; after which time they should be constantly watered three or four times a Week, or sometimes oftener, in very hot Weather; and they must have Plenty of Air admitted to them in the Summer Season, otherwise they will draw up weak; but in Winter they must be placed in the Bark-stove, and treated as the Coffee-tree, and such other tender Exotic Plants. With this Management they will produce Flowers the second or third Year, and may be continued for several Years; and as they retain their Leaves thro' the Year, they will add to the Variety in the Stove.

CELTIS, The Lote or Nettle-tree.

The *Species* omitted in the former Volumes, are;

1. *CELTIS orientalis, folio ampliore, magno fructu. T. Cor.* The Eastern Lote or Nettle-tree, with larger Leaves and Fruit.

2. *CELTIS orientalis minor, foliis minoribus & crassioribus, fructu flavo. T. Cor.* Smaller Lote or Nettle-tree, with smaller and thicker Leaves, and yellow Fruit.

3. *CELTIS Americana, folio citri subtus aureo, fructu rubro. Plum.* American Lote or Nettle-tree, with a Citron-leaf, and a red Fruit.

The first and second Sorts were discovered by Dr. *Tournefort* in his Travels, who sent their Fruits to the Royal Garden at *Paris*; where they were raised, and have since been distributed to many curious Gardens in *Europe*. These two Sorts are as hardy as those mentioned in the former Volumes, so that they will endure

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endure the sharpest Winters in the open Air, especially when they have acquired sufficient Strength ; for many of these Trees may suffer by Cold, when they are very young, though afterwards they are capable of resisting the severest Cold of this Country.

The first Sort will make large Trees, and is proper to range with those of the former Volumes ; but the second never grows very large : this will produce Fruit in a few Years after planting, by which it may easily be propagated ; for the Plants will generally come up the first Year, whereas those of the other Sorts seldom appear until the second. These Seeds may be sown in Pots or Boxes filled with light fresh Earth, early in the Spring, and placed where they may have the morning Sun. In dry Weather they must be constantly watered, and they must always be kept clear from Weeds. At *Michaelmas* the Pots should be removed under a South Wall ; and if the Winter should prove very severe, it will be proper to screen the Plants with Glasses ; otherwise, being very young, they may be destroyed. The following Spring, just before the Plants begin to put out, they should be transplanted either into small Pots, or into a Nursery-bed, observing, if the Spring should prove very dry, to water them constantly, and lay some Mulch about their Roots, to prevent the Sun and Air from penetrating to their Roots ; and be careful to clear them from Weeds the following Summer. In this Bed they may remain two Years, in which time they will have acquired Strength enough to be transplanted where they are to remain. The best Season for removing of them is just before they begin to shoot, observing

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to water them in dry Weather, and lay some Mulch about their Roots, as was before directed. After the Plants are well rooted, they will require no farther Care, but to keep them clear from Weeds, and prevent their being overshadowed with other Trees.

The third Sort was discovered by Father *Plumier* in *America* : this is a tender Plant, and will not live out of a Stove in this Country. It may be propagated by Seeds, which must be procured from the *West-Indies* (for it hath never produced Fruit in *Europe*) : the Seeds should be sown in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark : these Pots must be constantly watered, and in the middle of the Day, when the Weather is mild, the Glasses of the Hot-bed should be raised to admit fresh Air, and to let the Steam of the Bed pass off. When the Plants are come up about two Inches high, they should be each transplanted into a separate small Pot, filled with light rich Earth, and plunged again into the Hot-bed, observing to shade the Glasses every Day, until the Plants have taken Root ; as also to water them duly, as you perceive the Earth to dry. During the Heat of Summer, the Plants must have a large Share of fresh Air every Day ; but at *Michaelmas* they must be removed into the Bark-stove, and managed as the Coffee-trees, and other tender Exotic Plants ; where they will thrive very well, and having strong shining Leaves, will make an agreeable Variety.

CENTAURIUM MINUS, Lesser Centaury.

To this Article must be added,

1. CENTAURIUM MINUS *maritimum Americanum*, *amplo flore caeruleo*. *Plum. Cat. American Sea Lesser Centaury*, with a large blue Flower.

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The Seeds of this Plant were sent from *La Vera Cruz* by the late Dr. *William Houstoun*, who found this Plant in great Plenty upon low swampy Grounds, where the Water stagnated, at a great Distance from the Sea, in the Country about *Vera Cruz*.

This Plant may be propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when the Plants are come up, and are strong enough to transplant, they should be each put into a separate small Pot filled with light fresh Earth, and placed into a Hot-bed of Tanners Bark, observing to screen them from the Sun, until they have taken new Root; after which time they must have a large Share of fresh Air in warm Weather, and they should be frequently refreshed with Water. With this Management the Plants will produce their beautiful blue Flowers in Autumn; and, if they are removed into the Bark-stove, may be preserved thro' the Winter; so that the following Year there may be Hopes of their producing ripe Seeds, whereby the Plant may be preserved; for it seldom continues, after it has perfected Seeds.

CHAMÆRHODODENDRON,
Sweet Mountain Rose.

The Characters are;

It hath a tubulous Flower consisting of one Leaf, shaped somewhat like a Funnel; from whose Cup arises the Pointal, fixed like a Nail in the hinder Part of the Flower, which afterwards becomes an oblong Fruit, divided into five Cells, in which are contained many very small Seeds.

The Species are;

1. CHAMÆRHODODENDRON *Alpinum glabrum*. Tourn. Smooth Mountain Rose of the Alps.

2. CHAMÆRHODODENDRON *Alpinum villosum*. Tourn. Hairy Mountain Rose of the Alps.

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3. CHAMÆRHODODENDRON *Alpinum serpillifolium*. Tourn. Mountain Rose of the Alps, with a Mother of Thyme Leaf.

4. CHAMÆRHODODENDRON *Indicum, flore amplo coccineo*. Tourn. Indian Mountain Rose, with a large scarlet Flower.

The first, second and third Sorts, grow wild on the Alps, as also upon several Hills in *Germany* and *Austria*; but are with great Difficulty preserved in Gardens in this Country. The best Method to cultivate these Plants is, to put them in Pots filled with fresh loamy Earth, and place them in a shady Situation, observing to water them constantly in dry Weather, otherwise they will soon decay; for in their natural Situation they have frequent Rains, and very great Dews, whereby the Ground is kept continually moist; so that when these Plants are transplanted into a drier Situation, if they are not duly watered, they are soon destroyed.

They may be propagated by laying down their tender Branches early in the Spring; which, if duly watered, will take Root by the following Spring; when they should be separated from the old Plants, and transplanted, either into Pots filled with fresh loamy Earth, or into some shady moist Border; where, if they are duly watered in dry Weather, they will thrive, and produce their Flowers; but they will not perfect their Seeds in this Country.

The fourth Sort is very tender; therefore must be placed in a warm Stove in the Winter, otherwise it will not live in this Country. This Kind may be propagated by laying down the tender Branches, which will take Root in one Year, provided they are duly watered: then they may be taken off from the old Plant, and each planted into a separate

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rate. small Pot filled with fresh loamy Earth ; and if the Pots are placed in a moderate Hot-bed of Tanners Bark, and the Glasses shaded in the Heat of the Day, until the Plants have taken new Root, it will be a very safe Method to preserve them, and will greatly promote their Growth.

The second Year after these Layers are taken from the old Plants, they will produce Flowers, and continue so to do every Year after. These Plants may be placed abroad in Summer ; but they must not be taken out of the Stove till the middle of *June*, and must be placed where they may be well defended from strong Winds ; otherwise they will lose their Leaves in Summer, which will prevent their flowering : nor should they remain abroad too late in Autumn ; for if they remain so late as to be pinched by morning Frosts, they seldom survive it ; for when the upper Leaves, and tender Shoots, are nipped, the Shoots will decay soon after, and the whole Plant be destroyed. In Summer these Plants require to be plentifully watered ; but in Winter they should not have too large Quantities, but must be frequently refreshed.

CLUTIA.

This Plant was named by the learned Dr. *Boerhaave* of *Leyden*, in Memory of *Augerius Clute*, who was a curious Botanist.

The Characters are ;

It hath a rose-shaped Flower, consisting of five Leaves ; in the Crown arises the Pointal, surrounded by five Stamina ; this Pointal afterward becomes the Fruit, which is divided into three Parts, and hath three Cells, in which are contained Seeds.

We have but one Species of this Plant, which is ;

CLUTIA *Æthiopica frutescens, portulacæ folio, flore ex albido vi-*

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rescente. Boerb. Shrubby *Æthiopian* Clutia, with a purslane Leaf, and a greenish white Flower.

This Plant is propagated by Seeds, which should be sown early in the Spring, on a moderate Hot-bed, observing to water the Bed gently from time to time, as the Surface becomes dry ; and in the Heat of the Day the Glasses should be raised to admit fresh Air, and let the Steam arising from the Bed pass off. If the Bed be of a proper Temper for Heat, the Plants will appear in about a Month after sowing ; and when they are about two Inches high, they should be carefully taken up, and transplanted each into a separate small Pot filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken new Root ; after which time they should be frequently refreshed with Water, and the Glasses should be raised every Day, when the Weather is warm, to admit fresh Air ; otherwise the Plants will draw up very tall, and become very weak. Toward the latter End of *June*, if the Plants have made a good Progress, they will be near a Foot in Height : therefore you should then begin to inure them to bear the open Air ; and the middle of *July*, they may be removed out of the Hot-bed, and placed in the open Air, in a warm Situation, where they may be defended from strong Winds. During the Summer Season, these Plants must be frequently watered ; but it should not be given in too large Quantities, especially while the Plants are young. Toward the latter End of *September*, the Plants must be removed into Shelter ; for if they are exposed too late in Autumn, they will be in Danger of suffering by morning Frosts. In Winter these Plants

Plants should be placed in a moderate Stove for the first Season, while they are young ; but after they have obtained Strength, they will live in a good Green-house ; but then they should not have too much Water in cold Weather. This Plant will rise to the Height of three or four Feet, and become shrubby ; and being an Ever-green, will add to the Variety in the Green-house.

COA.

This Plant was so named by Father Plumier from the Island of *Cous*, which gave Birth to the Prince of Physicians *Hippocrates*. We have no *English* Name for this Plant.

The Characters are ;

It hath a globular bell-shaped Flower, consisting of one Leaf ; from whose Cup arises a multifid Pointal, fixed like a Nail in the hinder Part of the Flower ; which afterward becomes a Fruit, composed of three membranaceous Seed-vessels, which are compressed, bivalve, and divided into two Cells, in which are contained oblong winged Seeds.

We have but one Species of this Plant, which is ;

COA scandens, fructu trigemino subrotundo. Plum. Climbing Coa, with a roundish Fruit, which opens into three Parts.

This Plant was observed by Father Plumier, (in the *French* Islands in *America*) and hath been since found in great Plenty in the *Spanish* Settlements in *America*, particularly about *Campechy*, from whence the Seeds have been sent by Mr. Robert Millar, Surgeon, to some curious Persons in this Country, who have raised several of the Plants ; but as they are very young, so it can't be expected that any of them will produce Flowers until they are three or four Years old, because they seem to be of slow Growth.

This Plant is propagated by Seeds, which must be obtained from the Places where it naturally grows, which should be sown early in the Spring, in small Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to water the Earth as often as it becomes dry ; and in the Heat of the Day, the Glasses of the Hot-bed should be raised to admit fresh Air, and let the Steam, which may arise from the Bed, pass off ; and if the Nights should prove cold, the Glasses should be covered with Mats. If this be duly observed, the Plants will begin to appear in three Weeks or a Month after sowing ; when you should be careful to sprinkle them frequently with Water, but do not let them have too much at each time ; for while they are very young, they will be in Danger of rotting, if they are kept too moist. You must also observe to admit fresh Air to them, in proportion to the Warmth of the Season, otherwise they will draw up very weak ; which should always be carefully prevented, because few Plants which are drawn up tender at first, will ever after become so strong and beautiful as those which are brought up hardily from the Beginning.

When the Plants are about two Inches high, they should be carefully transplanted each into a separate Pot, filled with light fresh Earth, and plunged into the Hot-bed again, observing to shade the Glasses every Day when the Sun is warm, until the Plants have taken new Root ; after which time they should be raised every Day to admit fresh Air to the Plants, in Proportion to the Warmth of the Season. During the Summer Season, these Plants must be frequently refreshed with

Water ; and when their Roots have filled the Pots in which they were first planted, they should be shaken out of them, and their Roots pared round, and then put into Pots a little larger than the former, which must be filled with light fresh rich Earth, and then plunged again into the Hot-bed ; for these Plants will not live in the open Air in this Country : so that when they are grown too large to remain under the Glasses of the Hot-bed, they should be removed into the Bark-stove, where they should be placed with the tenderest Exotics, and treated with great Care. This Plant commonly rises to the Height of five or six Feet, but being a trailing Plant must be supported by a Stake ; otherwise it will trail on the neighbouring Plants in the Stove, and injure them. It is ever green, and the Leaves being of a shining green Colour, it makes a pretty Variety amongst other tender Exotic Plants.

CONOCARPODENDRON, Silver-tree, *vulgò*.

The Characters are ;

It hath an apetalous staminate Flower, which is surrounded by a Number of long Leaves, immediately under the Flower-cup, which consists of five narrow Leaves ; these are succeeded by Cones, in Shape like those of the Larch tree ; the Seeds are each of them included in a separate Cell.

The Species are ;

1. CONOCARPODENDRON *foliis argenteis sericeis latissimis*. Boerb. Ind. alt. Silver-tree with broad soft white Leaves.

2. CONOCARPODENDRON *folio rigido crasso angusto, cono laricis parvo*. Boerb. Ind. alt. Silver-tree with a narrow thick stiff Leaf, and a small Cone.

3. CONOCARPODENDRON *folio*

subrotundo crasso rigido valde nervoso, cono longo variegato, ex rubro & flavo, flore aureo. Boerb. Ind. alt. Silver-tree with a roundish thick stiff Leaf full of Nerves, long Cones variegated with Red and Yellow, and a gold-coloured Flower.

4. CONOCARPODENDRON *foliis tenui angusto saligno, cono caliculato, corona foliacea succincto*. Boerb. Ind. alt. Silver-tree with a narrow willow Leaf, and the Cones growing in small Cups, which are surrounded with a Crown of Leaves.

These Plants are at present very rare in the European Gardens : the natural Place of their Growth is in the Country of the *Hottentots*, near the *Cape of Good Hope*, from whence several of these Kinds have been brought to the Gardens in *Holland* ; but I have not observed more than two Sorts in the *English* Gardens : for they are with Difficulty propagated, the Cuttings seldom taking Root, tho' managed with the greatest Care, and the Layers are two or three Years before they are rooted enough to take off ; so that the surest Method to propagate these Plants is by Seeds, which are seldom brought from the Country of their Growth ; and as they do not yet produce Seeds in *Europe*, they will be scarce, unless a Quantity of their Seeds could be procured from *Abroad*.

The Seeds should be brought over in their Cones ; for if they are taken out, they will lose their growing Quality, before they arrive in *Europe*. When the Seeds are obtained, they should be sown early in the Spring of the Year, in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing frequently to water the Earth ; otherwise the Seeds will dry, and their Covering become so hard,

as to prevent their Growing. When the Plants are come up about two Inches high, which may be expected in Six Weeks after sowing, if the Seed be fresh, they should be carefully shaken out of the Pots, and separated, putting each into a small half-penny Pot, filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark; then water them pretty well, to settle the Earth to their Roots, and in the Heat of the Day cover the Glasses of the Hot-bed, to screen the Plants from the Sun, until they have taken new Root, which will not be longer than a Fortnight; after which time they must have a large Share of fresh Air admitted to them, by raising the Glasses with Bricks every Day, when the Weather is warm: you must also frequently refresh them with Water in hot Weather, which if duly observed, the Plants will have obtained Strength enough by the Beginning of *July* to bear the open Air, to which they must then be enured by degrees; and the middle of *July* they should be taken out of the Hot-bed, and placed in a warm Situation, where they may be screened from strong Winds: in which Situation they may remain until the End of *September*, when they should be removed into the Green-house. For the first Year they are somewhat tenderer, than they will be when they are grown large; so that the first Winter they should be placed in the warmest Part of the Green-house, where they may enjoy the Heat of the Sun, and be secured from Cold.

After the first Year these Plants may be treated as many other Exotic Plants which come from the same Country, and only require to be protected from great Cold; there-

fore may be placed in the open Air during the Summer Months, and in Winter removed into the Green-house, and placed where they may enjoy as much free Air as possible in mild Weather; for if these Plants are kept too warm, or too closely confined from the Air, they will make long weak Shoots, and become sickly. These Plants must be new-potted every Spring, when the Earth should be carefully pared off from their Roots, and fresh Earth added to fill the Pots; and as the Plants advance in Size, they should have larger Pots; but they must not be put into Pots too large, for nothing is more injurious to most Plants than over-potting of them.

These Plants, in the natural Country of their Growth, become large Trees; but in *Europe*, where they are confined in Pots or Tubs, it cannot be expected they should grow so large. The largest Plant of these Kinds I have yet seen, was not more than eight Feet high; but as they retain their Leaves throughout the Year, which are of a fine silver Colour, they merit a Place in the Green-house, for the beautiful Variety they add among other Exotic Plants.

CONVOLVULUS, Bindweed.

The *Species* omitted in the former Volumes are;

1. *CONVOLVULUS radice tuberosa esculenta, spinachiae folio, flore albo, fundo purpureo, semine post singulos flores singulo.* Sloan. Cat. White and yellow Spanish Potatoes.

2. *CONVOLVULUS radice tuberosa esculenta minore purpurea.* Sloan. Cat. Red Spanish Potatoes.

3. *CONVOLVULUS radice tuberosa cathartica.* Houst. The Jakap.

4. *CONVOLVULUS radice tuberosa maxima, foliishederaceis incanis, floribus maximis purpureis, semine villosa.*

villoso. Houst. Large tuberous rooted Bindweed, with hoary Ivy-leaves, large purple Flowers, and hairy Seeds.

5. CONVULVULUS *pentaphyllos, folio glabro dentato, viticulis hirsutis. Plum. Cat.* Five-leav'd Bindweed, with smooth indented Leaves, and hairy Stalks.

6. CONVULVULUS *polyanthos niveus, folio subrotundo majori. Plum. Cat.* American Bindweed, with many white Flowers, and a larger roundish Leaf.

7. CONVULVULUS *luteus polyanthos. Plum. Cat.* Yellow many-flowered Bindweed.

8. CONVULVULUS *amplissimo folio cordiformi, flore maximo purpurascente. Plum. Cat.* Bindweed with a large heart-shaped Leaf, and a large purplish Flower.

9. CONVULVULUS *amplissimo folio cordiformi, flore albo maximo. Plum. Cat.* Bindweed with a large heart-shaped Leaf, and a large white Flower.

10. CONVULVULUS *coccineus pentaphyllos, radice crassissima. Plum. Cat.* Scarlet Bindweed, with seven Leaves, and a thick Root.

11. CONVULVULUS *pentaphyllos hirsutus. Plum. Cat.* Hairy five-leaved Bindweed.

12. CONVULVULUS *polyphyllus, flore & fructu purpureis maximis. Plum. Cat.* Many-leaved Bindweed, with the largest purple Flower and Fruit.

13. CONVULVULUS *minimus villosus, helianthemi folio. Plum. Cat.* The least hairy Bindweed, with a dwarf Cistus-leaf.

14. CONVULVULUS *pentaphyllos minor, flore purpureo. Sloan. Cat.* Lesser five-leaved Bindweed, with a purple Flower.

15. CONVULVULUS *polyanthos, foliis & viticulis purpureis. Many-*

flowered Bindweed, with purple Stalks and Leaves.

16. CONVULVULUS *Americanus, aristolochiæ folio glabro, viticulis hirsutis, flore majore purpureo, semine lanuginoso. American* Bindweed, with a smooth birthwort Leaf, hairy Stalks, a large purple Flower, and hairy Seeds.

17. CONVULVULUS *Americanus, foliis oblongis hirsutis, flore minore purpurascente, semine minimo. American* Bindweed, with hairy oblong Leaves, a small purplish Flower, and the least Seed.

18. CONVULVULUS *folio hederæ, flore dilute aurantio. Breyn.* Bindweed with an Ivy-leaf, and a pale orange-coloured Flower.

19. CONVULVULUS *Syriacus, & Scammonæa Syriaca. Mor. Hist.* The Scammony.

20. CONVULVULUS *Indicus alatus maximus, foliis ibisco nonnihil similibus angulosis. Hort. Lugd. Bat.* The Turbith of the Shops.

The two Kinds of Potatoes are much cultivated in the *West-Indies*, where they are a great Part of the Food of the Inhabitants; and from these Roots they make a Drink, which they call *Mobby*; which is done by stewing the Roots over a gentle Fire till they are soft; then they break the Roots, and put them into fair Water, letting them remain therein two or three Hours, in which time the Water will have drawn out the Spirit of the Root; then they put the Liquor and Roots into a woollen Bag, and strain the Liquor through into a Jar, when in two Hours after it will begin to work; then they cover the Jar, and let it remain until the next Day, when it will be fit to drink. This Liquor they make stronger or weaker, by putting a greater or less Quantity of Roots into the Water. It is a very sprightly Drink,

Drink, but not subject to fly into the Head, nor will it keep good longer than four or five Days.

These Plants are propagated with great Ease; for every Piece of the Root, which has an Eye or Bud, will grow, and send out Branches trailing on the Ground, which emit Roots at every Joint, and form a large Tuber or Potatoe to each, which in those warm Countries will be full grown, and fit for Use in three or four Months time; so that from one Root planted there will be twenty or thirty fair Roots produced. Some of these Roots have been brought from *America* into *Europe*, and are now frequently cultivated in *Spain* and *Portugal*; from both which Places the Roots are annually brought into *England*, and are by some Persons greatly esteemed; tho' in general they are not so well liked as the common Potatoe, being too sweet and luscious for most Palates.

In *England* these Plants are sometimes cultivated by curious Persons, after the following manner: The latter End of *March*, or the Beginning of *April*, they prepare a Heap of hot Dung; then having chose a warm Spot of light Ground, they dig Holes about eight Feet asunder, into each of which they put two or three Barrows of the hot Dung, which must be laid smooth, raising it high in the middle; then they cover the Dung with light rich Earth, and upon the Top of each Hill they plant two or three Pieces of sound Roots, each having an Eye or Bud; then they cover the Hills with Bell or Hand Glasses, to preserve a Heat in that Part of the Hill where the Roots are planted, as also to prevent the Rain from rotting the Roots. In about a Fortnight or three Weeks after planting, they will begin to shoot, when the Glasses

must be raised on one Side every Day, to admit fresh Air to the Plants: and they must be frequently refreshed with Water, but it should not be given them in large Quantities, until the Plants are grown pretty strong, lest thereby you rot the Roots. When the Vines have spread so far as to reach the Sides of the Glasses, the Glasses must be raised with three Bricks, to allow Room for the Vines to spread; but the Glasses should not be taken quite away from the Plants until *June*, when the Plants will be past Danger of Injury from the Cold. As these Vines spread, so the Ground about them should be loosened, that they may more easily strike their Roots into it; and in dry Weather the Vines should be watered all over, three or four times a Week, which will greatly strengthen the Plants, and cause the Roots which are formed at each Joint of the Vines, to grow large and fair; they must also be constantly kept clear from Weeds, which, if suffered to grow amongst the Plants, will over-bear and greatly weaken or destroy them. These Roots must remain undisturbed till Autumn, when the first Approach of Frost will pinch the tender Leaves of the Vines, at which time you must immediately take up the Roots; for if the Frost should reach them, it will intirely destroy them. These Roots may be kept in dry Sand in a warm Place for Use in the Winter, and a few of the soundest must be preserved to make a fresh Plantation in the Spring.

The *Jalap*, whose Root has been long used in Medicine in *Europe*, is a Native of the Province of *Halapa*, about two Days Journey from *La Vera Cruz* in the *Spanish West-Indies*, from whence the Root is sent in great Quantities every Year to *Eu-*

rope; but it is of late that the Plant has been known to the *Europeans*; for Dr. *Tournefort*, upon the Information of Father *Plumier*, has delivered it as one Species of the *Marvel of Peru*, and constituted the Genus under the Title of *Jalapa*: But my late learned Friend Dr. *William Houstoun*, who was at *La Vera Cruz* two or three times, procured some Plants from *Halapa*, by his Interest with an ingenious *Spaniard*; which he carried to *Jamaica*, and planted there; by which he was informed truly, that it was one Species of *Convolvulus*, and accordingly gave it the Name I have here mentioned it under.

This and most of the other Sorts of *Convolvulus* here mentioned, were found in several Parts of *America*, by the fore-mentioned Dr. *Houstoun*, who sent the Seeds of them into *England*, where they have been cultivated; but as most of them are abiding Plants, and require a warm Stove to preserve them in Winter, few of them have been maintained here: for they spread and ramble so far, that few Stoves now built are tall enough to contain them; and if they are intermixed with other Plants, they will twist themselves round whatever Plants grow near them, and will soon over-bear and destroy them, if not timely prevented. The only Stoves yet built, within my Knowledge, proper for these Plants, are at the Right Honourable the Lord *PETRE's* at *Thorndon-Hall* in *Essex*; where there are Borders of Earth in the back Part of the Stoves, and Tye-laces thirty Feet high, to support these and other climbing Plants; at which Place we may hope to see these and most other Exotic Plants of large Growth, in greater Perfection than in any other Part of *Europe*; for

this noble Patron of Gardening has erected the most judicious and magnificent Stoves that were ever contrived; and these are so curiously stocked with Plants from the several Parts of the World, that it is already (tho' but lately executed) one of the most curious and magnificent Sights perhaps in the whole World.

All these Sorts of *Convolvulus* are propagated by Seeds, which should be sown in a moderate Hot-bed early in the Spring: those Sorts which have large Seeds should be sown very thin, and buried deeper in the Earth, than those which have small Seeds; in about a Fortnight after they are sown, the Plants will begin to appear above Ground, when the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants; otherwise they will draw up weak, and twist themselves together, so as to render it difficult to separate them. When the Plants are about three Inches high, they should be carefully taken up, and each planted in a small Pot filled with light fresh Earth, and then plunged into a moderate Hot-bed of *Tanners Bark*, observing to shade the Glasses every Day with Mats, until the Plants have taken new Root; after which time they should have a large Share of fresh Air, and in warm Weather they must be frequently watered. When the Plants have filled the Pots with their Roots, they should be shaken out, and planted into larger Pots, filled with fresh Earth, and then placed in the Stove, where they may have room to climb, and their Shoots either twisted on an *Espalier* made in the back Part of the Stove for these and other rambling Plants, or else supported with long Stakes; otherwise they will ramble over whatever Plants stand near them. Some of these Sorts will produce
Flowers

Flowers the first Season, but others will not flower until the second or or third Year, nor will they flower kindly, unless they have a large Share of fresh Air, especially in warm Weather. These Plants will continue several Years, provided they are managed rightly; and will produce Flowers and Seeds every Year, and make a fine Appearance in the Stove, when they are in Flower.

CONYZA, Fleabane.

The Species omitted in the former Volumes, are;

1. *CONYZA fruticosa, cisti odore, floribus pallide purpureis, summitatibus ramulorum insidentibus, capitulis & semine minoribus.* Sloan. Cat. Jam. Shrubby American Fleabane, smelling like the Rock-rose, with pale purple Flowers growing on the Top of the Branches, and smaller Heads and Seeds.

2. *CONYZA fruticosa, cisti odore, floribus pallide purpureis, summitatibus ramulorum insidentibus, capitulis & semine majoribus.* Sloan. Cat. Jam. Shrubby American Fleabane, smelling like the Rock-rose, with pale purple Flowers growing on the Top of the Branches, and larger Heads and Seeds.

3. *CONYZA arborescens tomentosa, foliis oblongis, floribus in summitatibus ramulorum racemosis sparsis albicantibus.* Houst. Woolly tree-like Fleabane, with longish Leaves, and white Flowers, growing in thin Bunches on the Top of the Branches.

4. *CONYZA frutescens, flore luteo umbellato.* Houst. Shrubby American Fleabane, with yellow Flowers, growing in an Umbel.

5. *CONYZA arborescens, foliis oblongis, floribus singulis, tribus flosculis constantibus.* Houst. Tree-like American Fleabane, with longish Leaves, and each Flower has constantly three Florets.

6. *CONYZA scandens, lauri foliis asperis, capitulis spicatis rotundis, floribus albis.* Houst. Climbing American Fleabane, with rough Bay-leaves, and white Flowers growing on round Spikes.

7. *CONYZA fruticosa, flore pallide purpureo, capitulis e lateribus ramulorum spicatim exeuntibus.* Sloan. Cat. Jam. Shrubby American Fleabane, with pale purple Flowers growing in Spikes from the Side and at the Top of the Branches.

8. *CONYZA major odorata, five Baccharis, floribus purpureis nudis.* Sloan. Cat. Jam. Greater sweet-smelling Fleabane, with naked purple Flowers.

9. *CONYZA major inodora, belenii folio integro, sicco & duro, cichorii flore albo, e ramorum lateribus exeunte.* Sloan. Cat. Greater unfavoury Fleabane, with hard dry Elecampane-leaves, and white Flowers growing from the Side of the Branches.

10. *CONYZA fruticosa, folio hastato, flore pallide purpureo.* Sloan. Cat. Jam. Shrubby American Fleabane, with a spear-shaped Leaf, and a pale purple Flower.

11. *CONYZA urticae folio.* Sloan. Cat. Jam. American Fleabane, with a Nettle-leaf.

12. *CONYZA herbacea, caule alato, salicis folio, floribus umbellatis purpureis minoribus.* Houst. Herbaceous American Fleabane, with a willow Leaf, and smaller purple Flowers growing in an Umbel.

13. *CONYZA odorata, bellidis folio villosa & viscosa.* Houst. Sweet-smelling Fleabane, with a viscous hairy daizy Leaf.

14. *CONYZA symphyti facie, flore luteo.* Houst. American Fleabane, with the Face of Comfrey, and a yellow Flower.

15. *CONYZA linariae folio, floribus parvis spicatis albis.* Houst.

American

American Fleabane, with a toad-flax Leaf, and small white Flowers growing in Spikes.

These shrubby Fleabanes are Natives of the *West-Indies*, where they usually grow about six or seven Feet high, and some of the Tree-kinds ten or twelve Feet high, and divide into many Branches. They are all propagated by Seeds, which should be sown soon after they are ripe; for as they have light downy Seeds, they will not retain their growing Quality very long. If the Seeds are sown in Autumn, they will remain in the Ground all the Winter, and the Plants will appear the following Spring; but then the Pots in which the Seeds are sown, should be plunged into a Hot-bed of Tanners Bark, and secured from Cold, otherwise the Seeds will perish in Winter. And when the Seeds are kept out of the Ground till Spring, they seldom grow: but as these Plants seldom produce Seeds in this Country, the surest Method to obtain the Plants, is to have their Seeds sown in a Box of Earth soon after they are ripe, in the natural Countries of their Growth, and sent over to *England*. When these Tubs of Earth arrive, they should be plunged into a moderate Hot-bed of Tanners Bark, and frequently refreshed with Water, which will soon bring up the Plants, if their Seeds were not destroyed in their Passage.

When the Plants begin to appear above Ground, the Glasses of the Hot-bed should be raised every Day in warm Weather, to admit fresh Air to the Plants; otherwise they will draw up weak, and be soon spoiled: they must also be frequently refreshed with Water in warm Weather; for they are all very thirsty Plants, most of them naturally growing in low swampy Grounds. When the Plants

are grown about two Inches high, they should be carefully taken up, and each planted in a separate Pot filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade the Glasses of the Hot-bed every Day with Mats, to screen the Plants from the Heat of the Sun, until they have taken new Root; after which time they must have a large Share of fresh Air, as also a great Quantity of Moisture in warm Weather. In Winter, these Plants must be placed in the Stove, where they may enjoy a moderate Warmth; for if they are kept too hot, they will make weak Shoots in Winter, which will render them very unsightly. In Summer these Plants must have a large Share of fresh Air, but they must not be placed in the open Air, for they are too tender to thrive abroad in this Climate.

These Plants will produce their Flowers in two or three Years after they are raised, and will continue many Years, provided they are carefully managed, and will flower annually toward the latter Part of the Summer.

The herbaceous Kinds must be propagated in the same manner as hath been directed for the woody Kinds; but these will decay annually to the Surface, and rise again every Spring from the Root. When the green Shoots begin to decay, the Plants should not be over-watered, lest thereby the Roots should be rotted; but during the time of their Growth, they must be plentifully watered. The surest Method to have these Plants produce their Flowers, is, to plunge the Pots into a moderate Hot-bed of Tanners Bark, in the Spring, always observing to let them have a large Share of Air in warm Weather, to prevent their

their shooting too weak, and water them frequently. With this Management they will produce their Flowers every Year ; but as they rarely produce ripe Seeds in *England*, so the Pots must be removed into the Stove in Winter to preserve their Roots, which may be parted in the Spring, at the time when they are plunged into the Hot-bed, by which Method they may be increased.

COPAIBA, The Balsam of *Capivi* Tree.

The Characters are ;

It hath a Flower consisting of five Leaves, which expands in form of a Rose ; the Pointal is fixed in the Centre of the Flower, which afterwards becomes a Pod ; in which are contained one or two Seeds, which are surrounded with a Pulp of a yellow Colour.

We know but one Sort of this Tree ; which is,

COPAIBA *folio subrotundo, flore rubro.* The Balsam of *Capivi*, with a roundish Leaf, and a red Flower.

This Tree grows near a Village called *Ayapel*, in the Province of *Antiochi*, in the *Spanish West-Indies*: this is about ten Days Journey from *Carthagen*a. There are great Numbers of these Trees in the Woods about this Village, which grow to the Height of fifty or sixty Feet ; some of these Trees do not yield any of the Balsam ; those which do, are distinguished by a Ridge which runs along their Trunks ; these Trees are wounded in their Centre, and they place Calabash Shells, or some other Vessels, to the wounded Part, to receive the Balsam, which will all flow out in a short time. One of these Trees will yield five or six Gallons of the Balsam ; but though these Trees will thrive well after being tapp'd, yet they never afford any more Balsam.

As this Balsam is used in Medicine, it deserves our Application to procure the Trees, and cultivate them in some of the *English* Colonies of *America* ; for as the *English* are possessed of Lands, in so many different Latitudes, they might cultivate most Kinds of Trees and Plants, from the different Parts of the World, which are useful in Medicine, Dying, or for any other Purpose of Life.

The Seeds of this Tree were brought from the Country of their Growth, by Mr. Robert Millar, Surgeon, who sowed a Part of them in *Jamaica*, which he informed me, had succeeded very well ; so that we may hope to have these Trees propagated in great Plenty in a few Years, in some of the *English* Colonies, if the Slothfulness of the Inhabitants doth not suffer them to perish, as they have the Cinamon-tree, and some other useful Plants, which have been carried thither by curious Persons.

There are not at present any of these Trees in *Europe*, that I can learn ; for those Seeds which Mr. Millar sent over to *England*, were all destroyed by Insects in their Passage, so that not one of them succeeded in the several Places where they were sown : but could fresh Seeds be procured, the Plants might be raised in *England*, and preserved in the Bark-stoves very well ; for the Country of their Growth is much more temperate than many others, from whence we have been furnished with a great Variety of Plants, which succeed very well in the Stoves, and some of them arrive to a great Degree of Perfection.

CORIS.

We have no *English* Name for this Plant.

The

The Characters are ;

It hath a monopetalous perfonated Flower, whose hinder Part is tubulous, but the fore Part is shaped like a Fan ; from the Flower-cup rises the Pointal, fixed like a Nail in the hinder Part of the Flower, which afterward becomes a globular Fruit, divided into several Parts, containing roundish Seeds, which are inclosed by the Calyx.

The Species are ;

1. CORIS *cærulea maritima*. C. B. P. Maritime blue Coris.
2. CORIS *maritima, flore rubro*. C. B. P. Maritime Coris, with a red Flower.
3. CORIS *maritima, flore albo*. H. R. Monsp. Maritime Coris with a white Flower.

These Plants grow wild about Montpellier, and in most Places in the South of France ; they seldom grow above a Foot high, and spread near the Surface of the Ground like Heath ; and in June, when they are full of Flowers, they make a very pretty Appearance.

They may be propagated by sowing of their Seeds in the Spring, on a Bed of fresh Earth ; and when the Plants are about three Inches high, they should be transplanted, some of them into Pots filled with fresh light Earth, that they may be sheltered in Winter, and the others into a warm Border, where they will endure the Cold of our ordinary Winters very well, but in severe Frost they are generally destroyed ; for which Reason, it will be proper to have some Plants of each Sort in Pots, which may be put under a common Hot-bed Frame in Winter, where they may be covered in frosty Weather ; but when it is mild, they should have a great Share of free Air. These Plants sometimes produce ripe Seeds in England ;

but they do not constantly perfect their Seeds : wherefore it will be proper to increase them from Slips and Cuttings, which will take Root if planted in April, on a very gentle Hot-bed, and shaded from the Sun, and duly watered.

CORNUS, The Dog-berry Tree.

The Species omitted in the former Volumes, are ;

1. CORNUS *fæmina Virginiana, angustiore folio*. The Virginian Dog-berry Tree, with a narrower Leaf.
2. CORNUS *mas Virginiana, foliis oblongis, fructu rubro majore*. The Male Virginian Dog-berry, with oblong Leaves, and a larger red Fruit.
3. CORNUS *mas Virginiana, flusculis plurimis albidis, ex involucri tetrapetalorubroirrupentibus*. D. Bannister. Pluk. Phyl. Tab. 26. F. 3. Virginian Dog-berry, with many small white Flowers, coming out of a four-leav'd red Involucrum.
4. CORNUS *racemosa trifolia & quinquefolia, foliis foraminulatis*. Plum. Cat. Branching American Dog-berry, with three or five Leaves.
5. CORNUS *pumila herbacea, Chamæpericlymenum dicta*. Hort. Elth. Dwarf Honey-suckle, vulgò.

The first, second and third Sorts, are very hardy Plants, and will thrive very well in the open Air in this Climate ; they may be propagated either by Seeds or Layers ; but as their Seeds are seldom perfected in this Country, so the laying down of their tender Branches in the Spring, is the most expeditious Method of propagating them ; for when the Seeds are procured from abroad, they remain a whole Year in the Ground, before the Plants appear ; whereas the Layers will be sufficiently rooted in one Year for transplanting, so that they will have two Years Growth Advance of those raised from Seeds.

These

These Plants thrive best on a moist light Ground ; for in the Country of their natural Growth, they are commonly found in swampy Places. They usually grow about ten or twelve Feet high, and spread pretty much on every Side into Branches ; and should be intermixed with Shrubs of the same Growth, in Wilderness Quarters, where they will make an agreeable Variety.

The fourth Sort is much more tender than either of the former : these may be propagated by Seeds, which must be sown in Pots filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water the Pots frequently in warm Weather, as also to raise the Glasses of the Hot-bed to admit fresh Air. These Seeds many times remain in the Ground a whole Year before the Plants will appear ; in which Case you must let the Pots remain in the Hot-bed, being careful to weed them ; and in Winter the Glasses must be covered with Mats to prevent the Frost from getting to the Seeds, which will destroy them. When the Plants come up, they must be frequently watered ; and when they are about three Inches high, they should be taken carefully out of the Pots, and each planted in a separate Pot filled with light fresh Earth, and plunged into a moderate Hot-bed, observing to screen them from the Sun until they have taken new Root ; after which time they must be frequently watered, and in warm Weather should have a large Share of fresh Air. In Winter they must be placed in the Stove ; for while these Plants are young, they are tender ; but when they have acquired Strength, they may be placed in the Green-house in Winter, and in Summer they may be exposed in the open

Air in a warm Situation. These Plants will produce their Flowers in England, but they never perfect their Seeds in this Country.

The Dwarf Honey-suckle grows on *Cheviot-Hills* in *Northumberland*, and on many high Mountains in Northern Countries, but is with Difficulty preserved in Gardens. It must be planted in a strong moist Soil, and a shady Situation ; where it will sometimes produce Flowers, but seldom abides many Years in Gardens.

CORNUTIA (We have no *English* Name for this Plant. It is so called from *Cornutus*, a Physician of Paris, who published a History of Canada Plants).

The Characters are ;

It hath a monopetalous, personated Flower, whose upper Lip stands erect, but the under Lip is divided into three Parts : from the Flower-cup arises the Pointal, which is fixed like a Nail in the hinder Part of the Flower, which afterward becomes a spherical succulent Berry, including Seeds which are for the most part kidney-shaped.

There is but one Species of this Plant yet known ; which is,

CORNUTIA flore pyramidato cæruleo, foliis incanis. Plum. Cornutia with a pyramidal Flower, and hoary Leaves.

This Plant was first discovered by Father Plumier in America, who gave it the Name. It is found in Plenty in several of the Islands in the *West-Indies*, and at *Campechy* and *La Vera Cruz*, from both which Places I received the Seeds, which were collected by my late ingenious Friend Doctor William Houstoun.

It is propagated by Seeds, which should be sown early in the Spring on a Hot-bed ; and when the Plants

are

are come up, they should be transplanted each into a separate Half-penny Pot, filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they should have fresh Air let into the Bed, in proportion to the Warmth of the Season, and they must be frequently watered (for it naturally grows on swampy Soils). When the Plants have filled these Pots with their Roots, they should be shifted into others of a larger Size, and plunged into the Hot-bed again, where they should be continued till *October*; when they must be removed into the Bark stove, and plunged into the Tan; for otherwise it will be very difficult to preserve it through the Winter. The Stove in which these Plants are placed, should be kept to the temperate Heat marked on Mr. *Fowler's* Thermometers, which will agree better with them than a hotter Stove. The third Year from Seed these Plants will flower, when they make a fine Appearance in the Stove, but they never perfect their Seeds in *England*.

They may be also propagated by Cuttings, which if planted into Pots filled with fresh Earth, and plunged into a Bark-bed, observing to shade and water them, will take Root, and must be afterwards treated as the Seedling Plants.

CORONILLA, Jointed-podded Colutea.

The *Species* omitted in the former Volumes, are;

1. CORONILLA *siliquis & seminibus crassioribus*. *Tourn.* Jointed-podded Colutea, with thick Pods and Seeds.

2. CORONILLA *Americana scandens pentaphylla*. *Plum.* Five-leav'd American joint-podded Colutea, with climbing Stalks.

The first Sort grows to the Height of two or three Feet, and branches out on every Side, so as to form a regular Shrub. This may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are about two Inches high, they should be carefully transplanted into small Pots, filled with light fresh Earth, and plunged into a very moderate Hot-bed, being careful to screen them from the Sun until they have taken new Root; after which time they must have a large Share of fresh Air, otherwise they will draw up very weak; they must also be frequently watered in warm Weather. When these Plants have acquired Strength, they should be inured to bear the open Air by Degrees; for in Summer they should be taken out of the Hot-bed, and some of them may be planted in warm Borders; but it will be proper to keep some in Pots, that they may be sheltered in Winter; for in severe Frost, those in the Borders will be in Danger of suffering thereby. These Plants produce their Flowers in the Spring, when they make an agreeable Appearance, and in *August* they perfect their Seeds.

The second Sort was discovered by Father *Plumier* in *America*. I received the Seeds of this Plant from *Carthagera*, which were sent me by my late ingenious Friend Doctor *William Houstoun*. This Plant is propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be each transplanted into a Half-penny Pot, filled with fresh rich Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they should have Air and

Water

Water in proportion to the Warmth of the Season; and when they have filled these Pots with their Roots, they should be shifted into Pots of a larger Size, and plunged into the Hot-bed again, where they must remain until Autumn, when they should be removed into the Stove, and plunged into the Tan. These Plants must be constantly kept in the Bark-stove, and placed among Plants which require a moderate Heat; where they will thrive and flower, and should be supported by tall Sticks, round which they will twine, as Hops do; so that they must not be suffered to twist round other Plants, lest they overbear and spoil them. These are very proper Plants to place against an Espalier on the back Part of the Stove, amongst other climbing Plants, where they will make an agreeable Variety.

This Sort will continue two or three Years, provided it be carefully managed, and will sometimes produce ripe Seeds in this Country; but it will be proper to lay down some of the Shoots, either into the Tan, or Pots of fresh Earth plunged into the Tan, because these will often take Root, whereby a Supply of young Plants may be obtained; which is a sure Method to preserve the Kind in this Country, where they do not commonly perfect their Seeds.

COTYLEDON, Navel-wort.

The *Species* omitted in the former Volumes, are;

1. COTYLEDON *major arborescens Afra, foliis orbiculatis glaucis, limbo purpureo & maculis viridibus ornatis. Boerb. Ind. alt.* Greater tree-like African Navel-wort, with rounder sea-green Leaves, having purple Edges, and spotted with Green.

2. COTYLEDON *Capensis, folio semiglobato. Hort. Elth.* Navel-

wort of the *Cape of Good Hope*, with thick half-globular Leaves.

The first of these Plants usually grows to the Height of two or three Feet in this Country, and divides into many Branches: it is easily propagated by Cuttings in any of the Summer Months, if, after they are taken from the Plants, they are laid in a dry Place for a Week or ten Days, that the wounded Parts may heal before they are planted; otherwise they are subject to rot. When the Cuttings are fit to plant, they should be each put into a Half-penny Pot, filled with a Mixture of fresh Earth, Lime-rubbish and Sea-sand, in equal Proportion; then plunge the Pots into a very moderate Hot-bed, which will greatly promote their rooting: in about six Weeks after Planting, the Cuttings will be well rooted, when they may be taken out of the Hot-bed, and placed in the open Air, in a Situation where they may be defended from strong Winds; where they may remain till the middle of *October*, provided there happens no frosty Weather before; then they must be removed into an airy Glass-case, where they may be defended from the Frost and Wet, and enjoy a large Share of fresh Air; in which Place they will thrive better than in a Green-house, where they cannot have so much free Air.

The second Sort is of humbler Growth, seldom rising above a Foot high; this produces many short Branches near the Ground, but never spreads very far, and may be confined in small Pots. This is propagated in the same manner as the former Sort, and should be treated in the same Method.

COURBARIL, [*This is the American Name by which the Indians call this Tree*] The Locust-tree, *vulgo*.

The

C O

The Characters are ;

It hath a papilionaceous Flower, from whose Calyx arises the Pointal; which afterward becomes an uncap-sular hard Pod, including roundish hard Seeds, which are surrounded with a fungous stringy Substance.

We know but one Species of this Plant, viz.

COURBARIL bifolia, flore pyrami-dato. Plum. Nov. Gen. Courbaril with two Leaves set together, and a pyramidal Flower, commonly called Locust-tree, by the *English* Inhabitants of *America*.

The Pods of this Tree are frequently brought from *America*, by the Title of Locust; from the Seeds of which these Plants may be raised. These Seeds should be sown on a Hot-bed early in the Spring, and when the Plants are come up, they should be very carefully taken up, and each planted into a small Pot, filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they should have Air and Water in proportion to the Warmth of the Season; but they will not bear to be quite exposed to the open Air in *England*, even in the hottest Part of Summer. In Winter these Plants must be removed into the Bark-slove, and plunged into the Tan, amongst the tenderer Sorts of Exotic Plants; and during that Season they should be frequently refreshed with Water, but it must not be given to them in large Quantities, for they are impatient of much Wet. If these Plants are continued in the Bark-slove, and shifted into larger Pots as they increase in Size, they may be preserved; but I believe it will be many Years before they will produce Flowers in *Europe*, for they are of very slow Growth, after the first six Months, being in this respect like the *Acajou*.

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CRASSULA, Lesser Orpine or House-leek.

The Characters are ;

It hath the Appearance of House-leek or Navelwort, from the latter of which it only differs in having a short tubulous Flower, consisting of one Leaf.

The Species are ;

1. CRASSULA *altissima perforata. Hort. Elth.* Tallest Crassula, with Leaves surrounding the Stalks, commonly called *Aloe perfoliata*.

2. CRASSULA *anacampserotis folio. Hort. Elth.* Crassula with an Orpine-leaf.

3. CRASSULA *portulacæ facie, arborescens. Hort. Elth.* Tree-like Crassula, with the Face of Purslain, commonly called the Purslain-tree.

4. CRASSULA *caposa longifolia. Hort. Elth.* Onion-like Crassula, with a long Leaf.

5. CRASSULA *caulescens, foliis sempervivi cruciatis. Hort. Elth.* Stalky Crassula, with Houseleek-leaves.

6. CRASSULA *mesembrianthemii facie, foliis longioribus asperis. Hort. Elth.* Crassula with the Face of Ficoides, and long rough Leaves.

7. CRASSULA *orbicularis repens, foliis sempervivi. Hort. Elth.* Creeping orbicular Crassula, with Houseleek-leaves.

8. CRASSULA *portulacæ facie, repens. Hort. Elth.* Creeping Crassula, with the Appearance of Purslain.

These Plants are Natives of the *Cape of Good Hope*, from whence they were brought into the *European* Gardens. The first, third and fifth Sorts, will grow to be shrubby: the first doth not send forth any Side-branches, unless the Top be cut off, or some way injured; but it may be trained up six or eight Feet high, if it is supported with a Stake. The third Sort grows almost in a pyramidal

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pyramidal Form, and the Stalks and Leaves have the Appearance of Purslain. The fifth Sort grows very bushy, and the Stalks are very full of Joints, and so brittle, that on the Touch they break, and the Pieces which fall on the Ground will take Root, so that it is easily propagated. The other Sorts are of lower Growth, most of them trailing on the Ground. The eighth Sort doth not continue above two Years, but it frequently ripens Seed, which if permitted to scatter upon the Earth in the Pots, and they are sheltered in Winter, will produce young Plants, whereby the Kind may be easily preserved.

The third Sort has not produced any Flowers in this Country, that I could ever hear; but from the Appearance of the Plant, it is ranged with these Plants.

All these Sorts may be easily propagated, by planting their Cuttings in any of the Summer Months, on a shady Border, where they will soon take Root, and may be then potted in a sandy rubbishing Earth; and must be treated in the same manner as the Ficoides's, to which I shall refer the Reader to avoid Repetition.

CROTOLARIA.

The Species omitted in the former Volumes, are;

1. CROTOLARIA *Americana*, *caule alato*, *foliis pilosis*, *floribus in thyrsis luteis*. Martyn. Decad. 5. American Crotolaria, with a winged Stalk, hairy Leaves, and yellow Flowers growing in a Spike.

2. CROTOLARIA *ari folio sagittato*, *flor. luteo*. Plum. Cat. Crotolaria with a spear-shaped Arum-leaf, and a yellow Flower.

3. CROTOLARIA *ari folio sagittato*, *flor. purpurascens*. Plum. Cat. Crotolaria with a spear-shaped Arum-leaf, and a purplish Flower.

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4. CROTOLARIA *frutescens hirsuta*, *flor. luteo*, *ramulis alatis*, *foliis mucronatis*. Houst. Shrubby hairy Crotolaria, with a yellow Flower, winged Branches, and pointed Leaves.

The first three Sorts are annual Plants, which should be raised on a Hot-bed early in the Spring; for if they are not brought forward at that Season, they seldom perfect their Seeds in this Country. As these Sorts are to be managed in the same manner as those which are mentioned in the former Volumes, it is needless to repeat it here.

The fourth Sort will grow to the Height of six or seven Feet, provided they are preserved in a warm Stove; otherwise they will not live through the Winter. These are propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up an Inch high, they should be carefully transplanted into small Pots filled with fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they should have Air and Water in Proportion to the Warmth of the Season. In this Bed they may remain until the Plants reach the Glasses, when they must be removed into the Bark-stove, observing to shift them into larger Pots, as they shall require it.

CUIETE, The Calabash-tree.

The Characters are;

It hath a Flower consisting of one Leaf of an anomalous Figure, and divided at the Brim into several Parts; from whose Cup rises the Pointal, fixed like a Nail in the hinder Part of the Flower; which afterward becomes a fleshy Fruit, having a hard Shell, inclosing many heart-shaped Seeds.

I

1. Cui-

1. CUIETE *foliis oblongis angustis, magno fructu ovato. Plum. Nov. Gen.* The Calabash-tree with narrow oblong Leaves, and a large oval Fruit.

2. CUIETE *latifolia, fructu putamine fragili. Plum. Nov. Gen.* The broad-leav'd Calabash-tree, with tender-shelled Fruit.

3. CUIETE *minima, fructu duro. Plum. Nov. Gen.* The least Calabash-tree, with a hard Fruit.

4. CUIETE *angustifolia, fructu minori globoso. Plum. Nov. Gen.* Narrow-leav'd Calabash-tree, with a lesser globular Fruit.

5. CUIETE *angustifolia, fructu minori ovato. Plum. Nov. Gen.* Narrow-leav'd Calabash-tree, with a lesser oval Fruit.

The first and second Sorts rise to the Height of twenty-five or thirty Feet in the *West-Indies*, where they grow naturally in Woods and the Savanna's. The Shells of this Fruit are used by Negroes for Cups to drink out of; as also for Instruments of Music, by making a Hole in the Shell, and clearing it of the Pulp and Seeds; then they put in small Stones, or the hard Seeds of Trees, with which they make a sort of Rattle.

These Plants are all of them tender, and cannot be maintained in this Country, unless they are preserved in warm Stoves. They are propagated by Seeds, which should be obtained from the Countries where they naturally grow; for they never produce any Fruit in this Country. These Seeds should be sown early in the Spring, in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark; the Earth in these Pots must be frequently refreshed with Water; for if it be kept dry, the Seeds will not vegetate: in about five Weeks after the Seeds are sown, the Plants will

begin to appear; when they must be duly watered, and the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants, and let the Steam, which will arise from the Bed, pass off; which is very injurious to young Plants, when it is pent amongst them. When the Plants are about two Inches high, they should be carefully transplanted, each into a separate small Pot, filled with rich light Earth, and plunged into the Hot-bed again, being careful to screen them from the Sun until they have taken new Root; after which time they must have fresh Air admitted to them in proportion to the Warmth of the Season, and must be duly watered; for as they naturally grow on swampy Grounds, they require a pretty large Share of Moisture in warm Weather.

In Winter these Plants must be removed into the Stove, and plunged into the Bark-bed; for they do not thrive well, if they are placed on Boards in a dry Stove; because the Fibres of their Roots, which are toward the Side and Bottom of the Pots, will dry, and retard the Growth of the Plants, if the Pots are not surrounded with Tan, which always retains some Moisture, which keeps the Fibres of the Plants ductile, and thereby is greatly beneficial to them.

In Summer, these Plants may have a large Share of Air, by opening of the Glasses of the Stove; but they will not thrive, if they are taken out of the Stove, and placed in the open Air; therefore they should always be kept in the Bark-stove, observing to shift them into larger Pots, as the Plants advance in their Growth. With this Management, these Plants may be preserved many Years, and brought to a large Size; when they will make a fine Appearance amongst
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tender Exotic Plants in the Stove; for they retain their Leaves throughout the Year.

CUPRESSUS, The Cypress-tree.

The *Species* omitted in the former Volumes, are;

1. CUPRESSUS *Lusitanica patula, fructu minori.* Tourn. Spreading Portugal Cypress, with a smaller Fruit.

2. CUPRESSUS *Americana, fructu minimo.* American Cypress, with the least Fruit, commonly called White Cedar in *America*.

The first of these Trees is rarely to be seen in the *English* Gardens at present, nor is it so well worth cultivating as any of the other Kinds, it being of humbler Growth, and of a less regular Figure. This may be propagated by Seeds in the same manner as the common Sort, and is equally hardy; so that whoever hath an Inclination to cultivate this Tree, should procure the Cones from *Lisbon*, near which Place it grows very common.

The second Sort is a Native of North *America*, where it grows to a considerable Height, and affords an useful Timber to the Inhabitants for many Purposes. This Sort is extremely worth cultivating in *England*; for as it grows in a much colder Country, there is no Danger of its thriving well in the open Air in *England*; and being an Ever-green of regular Growth, it will add to the Variety in Wilderness Quarters, or other Plantations of ever-green Trees.

This Sort is propagated by Seeds, which should be sown in the Spring, in Boxes or Tubs filled with light fresh Earth, and placed where they may enjoy the Morning Sun till eleven or twelve o' Clock; in dry Weather they should be duly watered, and constantly kept clear

from Weeds: in this Situation they may remain till *Michaelmas*, when they should be removed to a warmer Place; for the Plants will not appear till the following Spring, so that it will be proper to place the Boxes or Tubs near a South Wall, Pale or Hedge, during the Winter Season, lest by being too much shaded, the Wet of the Winter Season should rot the Seeds. In the Spring following, if these Tubs or Boxes are placed on a moderate Hot-bed, it will bring up the Plants very soon, and greatly forward their Growth; but as the Spring advances, they should be injured to bear the open Air by Degrees; and in *May* they must be taken out of the Hot-bed, and placed in a sheltered Situation, where they may enjoy the Morning Sun, being careful to keep them clear from Weeds, as also to water them duly in dry Weather. The following Winter it will be proper to remove the Tubs near a South Wall or Pale; for the Plants being very young, are somewhat tenderer than they will be afterward. Toward the latter End of *March*, or the Beginning of *April*, just before the Plants begin to shoot, they should be carefully taken up out of the Boxes; and having prepared a Bed or two (according to the Quantity of Plants raised) of fresh Earth in a warm Situation, the Plants should be planted in Rows about eighteen Inches asunder, and about a Foot Distance Plant from Plant in the Rows: this Work should be done in cloudy Weather, or when there is Rain; for in dry Weather, when Easterly Winds commonly blow at this Season, it will be very dangerous to transplant these Plants; so that it had better be deferred a Fortnight longer, till there is an Alteration of Weather, than hazard the Plants. When the Plants are planted, they

should be watered to settle the Earth to their Roots; and then the Surface of the Ground should be covered with Mulch, to prevent the Sun and Wind from penetrating to the Roots of the Plants; for nothing is more injurious to these Plants, than to have their Fibres dried when they are transplanted; therefore the Plants should not be taken out of the Tubs, till you are ready to place them in the Ground; for they will not bear to lie out of the Ground any time without great Danger.

These Plants may remain in the Beds where they are first transplanted, three or four Years; during which time the Ground must be constantly kept clean from Weeds; and every Spring the Earth must be carefully dug between the Plants, in doing of which great Care should be had not to disturb their Roots, nor to lay them bare, lest the Wind and Sun should injure them. When the Plants are about two Feet and a half, or three Feet high, they should be transplanted where they are to remain: the time for this Work is in *April*, in moist cloudy Weather. In taking of the Plants up, there should be as much Earth preserved to their Roots as possible; and if they are to be carried to any Distance, it will be proper to put them into Baskets, to prevent the Earth from falling from them; for if it should, there will be great Hazard of their growing. When they are planted, they must be well watered to settle the Earth to their Roots; and some Mulch should be laid upon the Ground about their Roots, to prevent the Wind and Sun from drying of them; and if the Season should prove dry, it will be proper to water them once or twice a Week, until they are thoroughly rooted; after which time they will require no other Culture, but to

keep them clear from Weeds, and dig the Ground about them every Spring: with this Management the Plants will make great Progress, and in a few Years will be out of any Danger.

This Sort of Cypress will grow as large in this Country as the common Kind; and will be very proper to intermix with them, either in Wildernesses, or in any other Plantations of these Trees, which will make an agreeable Diversity; and the Wood of these Trees may in time become useful for many Purposes.

But supposing the Timber of these Trees were of no Use, yet are they so very ornamental to Gardens, that no large Garden can be complete without many of these Trees; and it is to these Trees that the *Italian Villa's* owe a great Share of their Beauty: for there is no Tree so proper to place near Buildings. The pyramidal upright Growth of their Branches afford a picturesque Appearance, and do not obstruct the View of the Building; and the Dark-green of their Leaves makes a fine Contrast with the White of the Building. So that, where-ever there are Temples or other Buildings erected in Gardens, there is no Sort of Tree so proper to place near them as these. In all the Landscips of *Italian Villa's*, we see many Cypress-trees represented, which have a very agreeable Effect in the Picture; and the Trees, when rightly disposed in a Garden, afford a no less agreeable Prospect.

CURURU. This is the *Indian* Name for this Plant, and we know of no *English* Name to it at present.

The Characters are;

It hath a rose-shaped Flower, consisting of four or more Petals, which are placed in a circular Order, from whose many-leav'd Flower-cup arises the Pointal; which afterward becomes a pear-shaped triangular Fruit, divided

divided into three Parts from the Top to the Bottom, containing three fleshy Seeds, which are fastened to the Seed-vessel by a slender red Filament.

The Species are ;

1. *CURURU scandens enneaphylla, fructu racemoso rubro. Plum. Nov. Gen.* Climbing nine-leav'd Cururu, with red Fruit growing in a Bunch.

2. *CURURU scandens pentaphylla. Plum. Nov. Gen.* Climbing five-leav'd Cururu.

3. *CURURU scandens triphylla. Plum. Nov. Gen.* Climbing three-leav'd Cururu.

These Plants grow plentifully in the Island of *Jamaica*, at *La Vera Cruz*, and several other Parts of *America*; where they climb up Trees, and ramble over Hedges, Bushes, or whatever grows near them. The first, which is the largest Plant of Growth, will many times climb up five-and-twenty, or thirty Feet high; the other two seldom grow above sixteen or eighteen Feet high.

These Plants are preserved in curious Botanic Gardens for the sake of Variety, but there is no great Beauty in them. They may be propagated by sowing of their Seeds on a Hot-bed early in the Spring, and when the Plants are come up, they should be each transplanted into a small Half-penny Pot, filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they should have a large Share of fresh Air admitted to them in warm Weather, and must be frequently refreshed with Water. When the Plants have filled these Pots with their Roots, they should be shifted into others of a larger Size, and plunged into the Hot-bed again, treating them as before; in this Bed they may remain till Autumn (provided there is room

for them under the Glass without being pressed); then they must be removed into the Bark-stove, and placed toward the Backside of the Bed; where if they are supported by a Trellace, they will climb up to a great Height, and produce Flowers. In Winter these Plants should have a temperate Heat, and must be often refreshed with Water.

CYDONIA, The Quince-tree.

The Species omitted in the former Volumes, are ;

1. *CYDONIA fructu oblongo laxi dulci edulique. Tourn.* The Quince-tree with oblong smooth sweet Fruit, which are eatable.

2. *CYDONIA fructu oblongo minori lanuginoso non eduli. Tourn.* Quince-tree with lesser oblong downy Fruit, which are not eatable.

3. *CYDONIA angustifolia vulgaris. Tourn.* The common Quince-tree, with narrow Leaves.

These three Sorts may be cultivated in the same manner as the common Sorts, and are equally hardy; so that I shall not repeat it in this Place, but shall only observe, that it is the best way to propagate them either by Cuttings or Layers; for those which are propagated from Suckers, will always continue to send out a great Number of Suckers from their Roots, which renders them very unsightly.

CYTISUS, The Bafe-tree Trefoil.

The Species omitted in the former Volumes, are ;

1. *CYTISUS glabris foliis subrotundis, pediculis brevissimis. C. B. P.* Round-leav'd smooth Bafe-tree Trefoil, with short Footstalks. This is commonly sold by the Nursery Gardeners, under the Title of *Cytisus secundus Clusii*.

2. *CYTISUS hirsutus. J. B.* Hairy Bafe-tree Trefoil.

3. *CYTISUS spinosus*. H. L. Prickly Base-tree Trefoil.

4. *CYTISUS Monspelusanus*, *medicæ folio*, *siliquis dense congestis & villosis*. Tourn. Base-tree Trefoil of Montpellier, with Medic-leaves, and hairy Pods, growing in Bunches.

5. *CYTISUS incanus*, *siliquâ longiore*. C. B. P. Hoary Base-tree Trefoil, with a longer Pod.

6. *CYTISUS hirsutus*, *flore luteo purpurascente*. C. B. P. Hairy Base-tree Trefoil, with a purplish yellow Flower.

7. *CYTISUS glaber viridis*. C. B. P. Smooth green Base-tree Trefoil.

8. *CYTISUS foliis incanis angustis, quæ complicatis*. C. B. P. Base-tree Trefoil, with narrow hoary Leaves.

9. *CYTISUS humilis argenteus angustifolius*. Tourn. Silvery dwarf Base-tree Trefoil, with narrow Leaves.

10. *CYTISUS glutinosus, omnium minimus*. Tourn. The least clammy Base-tree Trefoil.

11. *CYTISUS argenteus linifolius, insularum Stæchadum*. Tourn. Silvery flax-leav'd Base-tree Trefoil, of the Stæchades Islands.

12. *CYTISUS Hispanicus procerior, anagyridis folio, floribus glomeratis*. Tourn. Taller Spanish Base-tree Trefoil, with an anagiris Leaf, and glomerated Flowers.

13. *CYTISUS Hispanicus humilior, floribus glomeratis*. Tourn. Lower Spanish Base-tree Trefoil, with glomerated Flowers.

14. *CYTISUS Lusitanicus, medicæ foliis, floribus in foliorum alis*. Tourn. Portugal Base-tree Trefoil, with a Medic-leaf, and the Flowers growing at the Wings of the Leaves.

15. *CYTISUS Lusitanicus, foliis minimis argenteis, parvo flore albo*. Tourn. Portugal Base-tree Trefoil, with the least silvery Leaves, and a small white Flower.

16. *CYTISUS Lusitanicus, foliis*

exiguus, magno flore, siliquis latis & tomentosis. Tourn. Portugal Base-tree Trefoil, with small Leaves, a large Flower, and broad woolly Pods.

17. *CYTISUS spinosus, siliquâ villosâ incanâ*. Tourn. Cor. Prickly Base-tree Trefoil, with white hairy Pods.

18. *CYTISUS spinosus Creticus, siliquâ villis densissimis longissimis & incanis obductâ*. Tourn. Cor. Prickly Base-tree Trefoil of Crete, with Pods covered with a thick long hoary Down.

19. *CYTISUS orientalis minimus humi fusus*. Tourn. Cor. The least low Eastern Base-tree Trefoil.

20. *CYTISUS orientalis humi fusus, flore magno ex luteo purpurascente*. Tourn. Cor. Low Eastern Base-tree Trefoil, with a large purplish yellow Flower.

21. *CYTISUS orientalis humi fusus, facie trifolii pratensis*. Tourn. Cor. Low Eastern Base-tree Trefoil, with the Appearance of Meadow Trefoil.

22. *CYTISUS foliis argenteis*. Wheel. Itin. Silvery Base-tree Trefoil of Sir George Wheeler.

23. *CYTISUS orientalis, medicæ foliis incanis & villosis, flore flavescente*. Tourn. Cor. Eastern Base-tree Trefoil, with hoary and hairy Leaves, and a yellowish Flower.

24. *CYTISUS orientalis latifolius subtus incanus*. Tourn. Cor. Eastern Base-tree Trefoil, with broad Leaves, which are hoary underneath.

25. *CYTISUS Africanus argenteus, flore atro-purpureo*. Oldenl. Silvery African Base-tree Trefoil, with a dark purple Flower.

26. *CYTISUS Africanus hirsutus angustifolius*. Oldenl. Hairy African Base-tree Trefoil, with narrow Leaves.

27. *CYTISUS Americanus spinosus, floribus luteis ad alas nascentibus*. Plum. Cat. Prickly American Base-tree Trefoil, with yellow Flowers growing at the Wings of the Leaves.

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28. *CYTISUS Americanus frutescens sericeus*. Plum. Cat. Shrubby filky American Base-tree Trefoil.

29. *CYTISUS Americanus arborescens, fructu eduli albo*. Plum. Cat. American tree-like Base-tree Trefoil, with a white eatable Fruit, commonly called the Pigeon Pea in America.

The first Sort is very common in the Nurseries about London; where it is sold with other flowering Shrubs, to intermix in planting Wilderiness Quarters. This may be easily propagated by the Seeds, which it produces every Year in great Plenty; which should be sown on a Bed of light Earth in March, and a little Earth sifted over the Seeds, so as to cover them about half an Inch. In the Beginning of May the Plants will begin to appear, when they should be carefully cleared from Weeds, and in very dry Weather they must be refreshed with Water. In this Bed the Plants may remain till the following Spring, always observing to keep them clear from Weeds; which, if suffered to over-bear the Plants while young, will either totally destroy them, or very much retard their Growth. The Spring following they may be transplanted out into Beds of fresh Earth the Beginning of March, placing them about a Foot asunder; being careful that the Plants are not kept above Ground, but planted as soon as they are taken up; otherwise the Fibres of the Roots will soon dry, which is very prejudicial to young Plants. In these Beds they may remain two Years; after which time they should either be planted out where they are to remain, or else transplanted into a Nursery, placing them in Rows three Feet asunder, and eighteen Inches Distance in the Rows; where they may continue until the Ground is ready where they

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are designed to remain. This Plant is very hardy, and will form a handsome Shrub about five or six Feet high, and is very proper to place amongst flowering Shrubs of the same Growth. It flowers plentifully in June, and the Seeds are ripe in August.

The second, third and fourth Sorts, are somewhat tenderer than the former, and will not abide the open Air in England in severe Winters.

These may be all propagated by sowing of their Seeds on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be transplanted each into a separate Half-penny Pot, filled with fresh Earth, and plunged in a moderate Hot-bed, observing to water and shade them until they take Root; after which they must be inured to the open Air by Degrees; and in June, the Pots should be removed and placed abroad in a Situation where they may be defended from strong Winds, where they may remain until the middle of October; when they should be removed either into an airy Green-house, or placed under a common Hot-bed Frame; where they should have as much free Air as possible in Winter, for they only require to be defended from hard Frosts; and if they have not much Air, they will draw very weak, and become tender and unsightly. These Plants should be removed into larger Pots the Spring following; and so from Year to Year, as they increase in Size, they should have larger Pots; in Summer they must be kept as long abroad as the Season will permit, and in Winter should have as much Air as possible in mild Weather; with which Management they will thrive, and produce great Plenty of Flowers. When these Plants are become woody, they may be shaken out of the Pots,

and planted in the open Air in a warm Situation, where they will endure the Cold of our ordinary Winters very well, and flower and produce ripe Seeds every Year, much better than those which are confined in Pots: but it will be proper to keep one Plant of each Kind in Pots, because a very severe Winter may destroy those which stand abroad; and their Kinds may be lost, unless there is one of each Kind preserved by sheltering of them in Winter.

The thirteen Sorts next following these, are some of them more tender than the four last mentioned; so that there will be a Necessity of preserving some of them in Pots, that they may be sheltered in Winter. All these Sorts may be propagated in the same manner as the former.

The eighteenth, nineteenth, twentieth, twenty-first, twenty-second, twenty-third and twenty-fourth Sorts, are less common than the former: these grow in the Islands of the *Archipelago*, from whence their Seeds may be procured: these Seeds should be sown in the Spring, on a very moderate Hot-bed; and when the Plants are come up, they should be carefully transplanted, each into a separate small Pot, filled with fresh light Earth; then place them where they may be sheltered from the Sun until they have taken new Roots; after which they may be removed into a warm Situation, where they may be defended from strong Winds, observing to water them constantly in dry Weather. In Winter these Plants should be placed under a Hot-bed Frame, where they may be sheltered from Frost, but they should be every Day exposed to the open Air in mild Weather; for they are hardy enough to bear the open Air of this Country, except in very cold Weather; and if

they are kept too tender, they will draw up very weak, so that they will not produce their Flowers.

The following Spring, some of these Plants should be shaken out of the Pots, and planted in a warm Situation in the full Ground; where they will thrive very well, and produce their Flowers every Spring, and some of them will perfect their Seeds; but it will be proper to preserve a Plant or two of each Kind in Pot, that may be sheltered in Winter; because those abroad may be destroyed by severe Frost. These Plants make a fine Diversity amongst flowering Shrubs of a middling Growth; so that they deserve a Place in every good Garden.

The two *African* Sorts are yet tenderer than either of the former; these will not bear the open Air of our Country in Winter; but must be constantly preserved in Pots, and removed into the Green-house in Winter, where they should be placed so as to enjoy as much free Air as possible in mild Weather; otherwise they will shoot very weak, and become unsightly; nor will they produce their Flowers in near so great Plenty, as when they are exposed to Air as much as possible in mild Weather.

These Sorts are propagated by Seeds, which should be sown early in the Spring, in Pots filled with light fresh Earth, which should be plunged into a Hot-bed of Tanners Bark, observing to water them gently as the Earth may require. When the Plants are come up two Inches high, they should be carefully transplanted, each into a separate small Pot, which should be plunged into a moderate Hot-bed; observing to screen them from the Sun until they have taken new Roots; after which time the Glasses of the Hot-bed should be raised every Day, to

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admit fresh Air to the Plants; and they must be duly watered three or four times a Week in warm Weather. By the Beginning of *June*, these Plants will have acquired some Strength; then they should be inured to bear the open Air by Degrees; and toward the End of *June*, if the Season proves warm, the Plants should be removed out of the Hot-bed, and placed in a warm Situation, where they may remain until *October*; when they must be removed into Shelter, placing them near the Windows of the Green-house, that they may enjoy a large Share of Air. During the Winter, these Plants must be frequently watered; but they must not have too much given them at a time, lest it rot the Fibres of their Roots. In Summer they must be exposed again, with other Exotic Plants, in a sheltered Situation, where they may be defended from strong Winds; and as the Plants increase in Size, they must be put into larger Pots; but they must not be allowed Pots too large, for in these they will not thrive.

The twenty-seventh and twenty-eighth Sorts are yet more tender than the last-mentioned; these being Natives of the warm Parts of *America*, will not live in this Climate, unless they are preserved in the warmest Stoves. They are propagated by Seeds, which should be sown early in the Spring, in Pots filled with rich light Earth, and plunged into a Hot-bed of Tanners Bark. When the Plants are come up about three Inches high, they should be each transplanted into a small Pot, filled with light fresh Earth, and plunged again into the Hot-bed, observing to shade them until they have taken Root again; then in warm Weather, the Glasses of the Hot-bed should be raised every Day

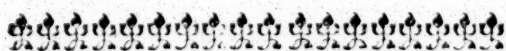
to admit fresh Air, in proportion to the Warmth of the Season; and they must be frequently watered in hot Weather. These Plants may remain in the Hot-bed during the Summer Season, but in Autumn they must be removed into the Stove, and plunged into the Bark-bed; where if they are duly watered, and the Stove kept to a temperate Heat, they will thrive exceeding well. They will not live in the open Air in this Country at any Season of the Year; wherefore they should always remain in the Stove, being careful to admit fresh Air to the Plants in warm Weather, by opening the Glasses of the Stove; and as the Plants advance, they should be removed into larger Pots: with this Management, they will continue many Years, and produce their Flowers, which will afford an agreeable Variety amongst other Plants of the same Country.

The twenty-ninth Sort is preserved as a Curiosity in *Europe*, but in the *West-Indies* it is frequently planted by the Sides of Alleys in Gardens, to form a Hedge, where it will last many Years without decaying, and will thrive on barren Land, which has been worn out, where scarcely any other Plant will prosper. It produces great Quantities of Fruit, which are sometimes eaten by the Inhabitants; but their chief Use is to feed Pigeons, from whence this Plant had its Name. The Branches, with the ripe Pease and Leaves, are given to Hogs, Horses, and most other Cattle, which fattens them very much.

In *England* it is preserved by some curious Persons in the Stove, being too tender to live through the Winter in this Climate without artificial Warmth. This Plant may be propagated by sowing of the Seeds on a Hot-bed early in the Spring; and when

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when the Plants are come up, they should be each transplanted into a Half-penny Pot, filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they should have a large Share of fresh Air admitted to them in warm Weather, and must be frequently refreshed with Water: when the Plants have filled these Pots with their Roots, they should be shifted into larger, and plunged into the Hot-bed again, treating them as before: in this Bed they may remain till they are too tall to stand under the Glasses, when they should be removed into the Stove, and plunged into the Bark-bed; where during the Winter Season they should have a moderate Heat, and be frequently watered. The Spring following they will produce Flowers, and if they are preserved in the Stove, will perfect their Fruit in Summer.



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DALECHAMPIA.

This Plant was so named by Father Plumier, in Honour to the Memory of Jacobus Dalechamp, who was a curious Botanist.

The Characters are;

It hath Male and Female Flowers on the same Plant, which are contained in a many-leav'd prickly Cup; the Female Flowers, with the Embryo's, have two trifid Leaves; the Male Flowers consist of a great Number of Stamina, which are loaded with Farina: the Embryo afterward becomes a Fruit, which is divided into three Parts, each containing one roundish Seed.

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We have but one Sort of this Plant; which is,

DALECHAMPIA scandens, lupuli foliis, fructu tricocco glabro, calyce hispido. Houst. Climbing Dalechampia, with Leaves like Hops, a smooth three-seeded Fruit, and a prickly Cup.

This Plant is a Native of the warm Parts of America; it was discovered by Father Plumier in Martinico; but either he has mistaken in his Description of the Fruit, or his Kind is different from that which the late Dr. Houstoun observed in several Places in the Spanish West-Indies; for Father Plumier describes the Fruit to be prickly, in the Sort which he saw; whereas that of Dr. Houstoun has smooth Fruit inclosed in a prickly Cup.

This Plant is propagated by Seeds, which must be sown early in the Spring on a Hot-bed; and when the Plants are come up three Inches high, they should be carefully transplanted, each into a separate small Pot, filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark, being careful to screen them from the Sun, until they have taken new Root; after which time, the Glasses of the Hot-bed should be raised every Day, in proportion to the Heat of the Weather, to admit fresh Air to the Plants: they must also be frequently watered, for they naturally grow in moist Places. When the Plants have grown so large as to fill these Pots with their Roots, they should be removed into larger Pots, and placed in the Bark-bed in the Stove; where they must be supported either with Stakes, or a Trellace, round which they will twine, and rise to the Height of eight or ten Feet.

These Plants must be kept constantly in the Stove, for they are too tender

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tender to bear the open Air in this Country, even in the Summer Season. Therefore they should be placed with *Convolvulus*'s, and other twining Plants, near the Back of the Stove, where should be made an Espalier to support them; in which Situation they will thrive, and produce their Flowers, and sometimes will perfect their Seeds in this Country. But in order to this, they should have a large Share of free Air in warm Weather, by drawing down the upper Glasses of the Stove; but in Winter the Stove should be kept to a temperate Heat, or rather higher. In Summer they will require a large Share of Water, but in Winter it should be given to them in less Quantities, but must be frequently repeated. These Plants do not continue above two or three Years; so that young Plants should be raised in order to preserve the Kind.

DAMASONIUM, Star-headed Water-plantain.

The Characters are;

It hath a Flower composed of three Leaves, which are placed orbicularly, and expand in form of a Rose; out of the Flower-cup rises the Pointal, which afterward becomes a star-shaped Fruit, with many Cells, which are full of oblong Seeds.

The Species are;

1. **DAMASONIUM stellatum.** Lugd. Star-headed Water-plantain.

2. **DAMASONIUM Americanum** *maximum, plantaginis folio, flore flavescente, fructu globofo.* Plum. Greatest American Water-plantain, with a Plantain-leaf, a yellowish Flower, and a globular Fruit.

The first of these Plants is a Native of England; it grows commonly in standing Waters, which are not very deep. It is sometimes used

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in Medicine, but never cultivated in Gardens; therefore must be gathered for Use in the Places of its Growth.

The second Sort grows in *Jamaica*, *Barbadoes*, and several other Places in the warm Parts of *America*, where it is generally found in stagnating Waters, and other swampy Places; so that it would be difficult to preserve this Plant in *England*; for it will not live in the open Air, and requires a Bog to make it thrive. But as it is a Plant of no great Beauty or Use, so it is not worth the Trouble of cultivating in this Country.

DENTARIA, Tooth-wort.

The Species omitted in the former Volumes, are;

1. **DENTARIA pentaphyllos, foliis mollioribus.** C. B. P. Five-leav'd Tooth-wort, with soft Leaves.

2. **DENTARIA pentaphyllos, foliis asperis.** C. B. P. Five-leav'd Tooth-wort, with rough Leaves.

3. **DENTARIA heptaphyllos baccifera.** C. B. P. Seven-leav'd berry-bearing Tooth-wort.

4. **DENTARIA triphylls.** C. B. P. Three-leav'd Tooth-wort.

5. **DENTARIA enneaphyllos, Montis Aurei.** H. R. Par. Nine-leav'd Tooth-wort of Mount d'Or.

These Plants grow on the Mountains in *Italy*, and in the Woods of *Austria*, and at present are very rare in the *English* Gardens. These Plants are propagated by Seeds, or parting of their Roots; the Seeds should be sown in the Autumn, soon after they are ripe, in a light sandy Soil, and a shady Situation; in the Spring the Plants may be taken up where they grow too close, and transplanted out in the like Soil and Situation; where, after they have taken Root, they will require no farther Care, but to keep them clear from Weeds: the second Year they will

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will produce Flowers, and sometimes will perfect their Seeds.

The best Season for taking up the old Roots to transplant them, is at *Michaelmas*, when the Leaves are decayed; at which time they may be parted to increase them. These Plants are proper to plant in dry Wilderesses, under the Shade of Trees; for their natural Places of Growth are in Woods, and on the Sides of Banks, under close Cover of Trees.

DENTILLARIA. *Vide Fraxinella.*

DIERVILLA. [*This Plant was so named by Dr. Tournefort, from Mr. DIERVILLE a Surgeon, who brought it from ACADIA.*] We have no English Name for this Plant.

The Characters are;

It hath a Flower consisting of one Leaf, which is tubulous, and divided into five Parts: the Ovary, which crowns the Pointal, is produced from the Centre of the two-leav'd Calyx; and after the Flower is pass'd, it becomes a pyramidal Fruit divided into four Cells, which are filled with small Seeds.

We have but one Species of this Plant at present in Europe; which is,

DIERVILLA *Acadiensis fruticosa, flore luteo. Acad. Reg. Scien.* Shrubby Diervilla of Acadia, with a yellow Flower.

This is a very low Shrub, seldom rising to the Height of three Feet in England; but is very subject to spread at the Root, and become bushy. The Flowers are small, and produced sparsely on the Branches, so that it doth not make any good Appearance in a Garden; but as it is pretty hardy, it may be admitted as an Under-Shrub, to fill up Vacancies in Wilderess Quarters, where it will add to the Variety. It is easily pro-

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pagated from Suckers, which it generally produces in great Plenty from the Root, or by laying down the Branches. It requires a Soil not too hot and dry, nor over-wet, but of a middling Nature.

DIOSCOREA. [*This Plant was so named by Father Plumier, from PEDACIUS DIOSCORIDES, a famous Physician.*] We have no English Name for this Plant.

The Characters are;

It hath a spreading bell-shap'd Flower, consisting of one Leaf, which is divided at the Extremity into several Parts; from whose Cup arises the Pointal, which afterward becomes a triangular Fruit, divided into three Cells, in which are contained orbicular Seeds, which are bordered.

The Species are;

1. DIOSCOREA *scandens, foliis tamni, fructu racemoso. Plum. Nov. Gen.* Climbing Dioscorea, with Black-briony-leaves, and the Fruit growing in Clusters.

2. DIOSCOREA *scandens, foliis hastato, fructu racemoso. Houst.* Climbing Dioscorea, with a spear-shap'd Leaf, and clustered Fruit.

3. DIOSCOREA *scandens, foliis subrotundo acuminato, fructu racemoso. Houst.* Climbing Dioscorea, with a roundish Leaf ending in a Point, and clustered Fruit.

These Plants, all of them, grow wild in America; the first and third Sorts were found in great Plenty in the woody Parts of Jamaica, by the late Dr. Houstoun; but the second Sort he found at Carthagera, from whence he sent Seeds of this Plant to England. They generally grow under Trees or Hedges, and twist up the Stems of whatever Plants grow near them.

In Europe these Plants are preserved in some curious Botanic Gardens,

dens, for Variety ; but they have no great Beauty, therefore are seldom admitted into other Gardens. They may be propagated by sowing of their Seeds on a Hot-bed early in the Spring ; and when the Plants are come up, they should be each transplanted into a small Pot, filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken new Root ; after which time, they should have a large Share of fresh Air admitted to them in warm Weather, and must be frequently watered. In this Bed the Plants may remain till Autumn, when they should be removed into the Bark-stove, and plunged into the Tan, under the other Plants ; for these die to the Root every Winter, and rise again in the Spring ; so that the Roots must not be over-watered, when the Plant is quite decayed to the Ground. These Roots will abide several Years, provided they are thus managed, and in three Years after sowing will flower in England.

DODARTIA. [*This Plant was so named by Dr. Tournefort, from Monsieur DODART, a Member of the Academy of Sciences at Paris.*] We have no English Name for this Plant.

The Characters are ;

It hath a personated tubulous Flower, consisting of one Leaf, having two distinct Lips ; the upper Lip is bifid, and the under one is divided into three Parts ; from whose Calyx arises the Pointal, fixed like a Nail in the hinder Part of the Flower, and afterward becomes a roundish Fruit, divided into two Cells, which are filled with small Seeds.

The Species are ;

1. **DODARTIA orientalis**, flore

purpurascens. Tourn. Cor. *Eastern*
Dodartia, with a purplish Flower.

2. **DODARTIA bellidis folio**, flore *albo spicato.* Dodartia with a Daisy-leaf, and white Flowers growing in a Spike.

These Plants may be propagated by sowing their Seeds on a Bed of fresh Earth in the Spring ; and when the Plants are come up an Inch high, they should be transplanted, some into small Pots, and the others into warm Borders (for they require some Protection in Winter) : those which are planted in Pots, should be placed under a Hot-bed Frame in Winter, where they may be covered in frosty Weather ; but in mild Weather they should have as much free Air as possible ; otherwise they will draw up very weak, and their Stems will rot off at Bottom in the Spring. The second Year after sowing, these Plants will flower, and ripen their Seeds, and very often decay soon after ; though, if the Plants are very sound, they will sometimes remain three or four Years.

DORSTENIA. [*This Plant was so named by Father Plumier, from Dr. Dorsten, a German Physician, who published a History of Plants in Folio*] Contrayerva.

The Characters are ;

It hath a thick fleshy Placenta, which is flat, and situated vertically ; upon which are placed many apetalous Flowers, which are succeeded by roundish Seeds, somewhat like those of Gromewell.

The Species are ;

1. **DORSTENIA dentariæ radice**, *sphondylii folio*, *placentâ ovali.* Houst. Contrayerva with a tooth-wort Root, Cow-parship-leaf, and an oval Placenta.

2. **DORSTENIA dentariæ radice**, *folio minus laciniato*, *placentâ quadranguluri*

drangulari & *undulatâ*. *Houft.* Contrayerva with a tooth-wort Root, less jagged Leaf, and a quadrangular undulated Placenta.

3. *DORSTENIA spondylii folio serrato, placenta quadrangulari, radice dentariæ*. Contrayerva with a tooth-wort Root, sawed Cow-par-nip-leaf, and a quadrangular Placenta.

The first of these Plants was discovered by my late ingenious Friend Dr. William Houstoun, near Old Vera Cruz in New Spain. The second was found by the same Gentleman, on the rocky Grounds about Campechy. The third Sort was found in great Plenty in the Island of Tobago, by Mr. Robert Millar, Surgeon. But the Roots of all these Species are indifferently brought over and used in Medicine, and for Dying.

These Plants are at present very rare in Europe, nor was it known what the Plant was whose Roots were imported, and had been long used in Medicine in England, until the late Dr. Houstoun informed us; for although Father Plumier had discovered one Species of this Plant, and given the Name of *Dorstenia* to the Genus, yet he seems not to have known, that the *Contrayerva* was the Root of that Plant.

It will be difficult to obtain these Plants, because the Seeds are seldom to be found good; nor will they grow, if they are kept long out of the Ground; so that the only sure Method to obtain them, is to have the Roots taken up at the time when their Leaves begin to decay, and planted pretty close in Boxes of Earth, which may be brought very safe to England, provided they are preserved from Salt-water, and are not over-watered with fresh Water in their Passage; when the Plants arrive, they should be transplanted

each into a separate Pot, filled with fresh Earth, and plunged into the Bark-stove, which should be kept to a moderate Heat, and the Plants must be frequently refreshed with Water during the Summer Season; but in Winter, when the Leaves are decayed, it should be given to them more sparingly. With this Management these Plants may not only be maintained, but may be also increased by parting their Roots in the Spring, before the Plants put out their Leaves.

DOUGLASSIA.

This Plant was so named by the late Dr. WILLIAM HOUSTOUN, in Honour to Dr. JAMES DOUGLASS, an eminent Physician at London.

The Characters are;

It hath an anomalous Flower, consisting of one Leaf, whose lower Part is tubulous, but the upper Part is expanded, and divided into five Segments; the Fruit, which is roundish, is divided into two Parts, which contain two Seeds.

There is but one Sort of this Plant at present known, viz.

DOUGLASSIA frutescens & *spinosa, ligustri folio, flore alba*. *Houft.* *Paliuro affinis ligustrifolia spinosa, flore monopetalo difformi, fructu sicco subrotundo*. *Sloan. Cat. Jam.* Shrubby prickly Douglassia, with a privet Leaf, and a white Flower.

This Shrub grows in great Plenty in the Woods and Savannas in Jamaica and Barbadoes; where it rises to the Height of ten or twelve Feet, and spreads into many Branches, at the Extremity whereof there are sent forth Clusters of white Flowers, which are succeeded by roundish Fruit.

It may be propagated by Seeds, which must be obtained from the Countries of its Growth; for it doth

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not produce Seeds in this Country : this Seed must be sown in Pots filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark, observing to water the Pots frequently, to keep the Earth moist ; otherwise the Seeds will not vegetate : in about a Month after sowing (if the Seeds are fresh) the Plants will appear above Ground, when they must be carefully watered three times a Week, provided the Bed is warm ; and in the Day-time, when the Sun is warm, the Glasses of the Hot-bed should be raised a little with Stones, to admit fresh Air to the Plants, as also to give Vent for the Steam of the Bed to pass off : With this Management the Plants will be fit to transplant in about three Weeks or a Month's time after their Appearance above Ground ; when they should be carefully shaken out of the Pots, and separated, being cautious how you part their Fibres, not to tear them ; then plant each into a separate small Pot filled with light rich Earth, and plunge them into the Hot-bed again, being careful to shade the Plants until they have taken Root ; after which time they must be duly watered, and the Glasses of the Hot-bed must be raised every Day, in proportion to the Warmth of the Season, to admit fresh Air to the Plants, that they may increase in Strength, in proportion to their growing in Height. These Plants may remain in the Hot-bed until Michaelmas (provided there is Room for them to stand without touching of the Glasses) : then the Plants should be removed into the Stove, and plunged into the Bark-bed, for the Winter Season. In the Winter these Plants must be frequently watered, but there should not be too much given to them at each time ; but in Sum-

mer they will require to be more plentifully watered. These Plants being Natives of warm Countries, will not thrive, if they are exposed to the open Air in this Country ; so that they should be constantly kept in the Stove, being careful to give them a large Share of Air in Summer, when the Weather is warm. With this Management the Plants will make good Progress ; and in two or three Years will begin to produce their Flowers, and will continue several Years to flower ; but they never produce ripe Seeds in this Country. This Plant continues green throughout the Year, and will afford an agreeable Variety in the Stove, among other tender Exotic Plants of the same Country.

DRACOCEPHALON, of *ῥαχί-
νον*, a Dragon, and *κεφαλή*, a Head,
i. e. Dragon's-head.

The Characters are ;

It hath a labiated Flower, consisting of one Leaf, whose upper Lip, which is crested, and its under Lip, which is divided into three Segments, end in Chops or Jaws, and have the Representation of a Dragon's Head : out of the Flower-cup rises the Pointal, fixed like a Nail on the hinder Part of the Flower ; and is accompanied by four Embryos, which become so many Seeds, shut up in the Flower-cup.

There is but one Species of this Plant, viz.

DRACOCEPHALON *Americanum*.
Breyn. prod. American Dragon's-head.

This Plant hath been ranged amongst the Foxgloves by several Botanic Writers ; but tho' from the Shape of the Flower, it seems to have some Affinity to that Genus ; yet by the Flowers in Whorles round the Stalks, and each Flower being succeeded by four naked Seeds, it plainly be-

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belongs to the verticillate Tribe. This is propagated by parting of the Roots in the Spring (for it seldom produces good Seeds in England); these should be planted in Pots, filled with fresh rich Earth, and during the Summer Season they should be exposed in a Place where they may be sheltered from strong Winds; and they must be constantly watered in dry Weather, otherwise they will not flower strong. In July these Plants will produce long Spikes of beautiful purple Flowers, and sometimes in a good Season they will produce Seeds. In Autumn these Plants die to the Ground, when the Pots should be placed under a Hot-bed Frame, where they may be sheltered from severe Frost in Winter; but in mild Weather they should have as much free Air as possible. In March these Plants may be taken out of the Frame, when they should be new potted, and the Roots parted, to increase them; but this should be done before the Plants begin to shoot up.

DRACUNCULUS, Dragon.

The Species omitted in the former Volumes, are;

1. *DRACUNCULUS Canadensis triphyllus pumilus*. Tourn. Dwarf Canady Dragon, with three Leaves.

2. *DRACUNCULUS Indicus, folio trifido*. Tourn. Indian Dragon, with a trifid Leaf.

3. *DRACUNCULUS Indicus, folio quinquifido*. Tourn. Indian Dragon, with a quinquifid Leaf.

4. *DRACUNCULUS Americanus, colicastræ foliis laciniatis*. Tourn. American Dragon, with a jagged Colocasia-leaf.

5. *DRACUNCULUS Americanus scandens, triphyllus & auritus*. Tourn. Climbing American Dragon with three Leaves, which have Ears to them.

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6. *DRACUNCULUS polyphyllus major Indicus serotinus, immaculato caule*. Tourn. Greater many-leav'd late Indian Dragon, with an unspotted Stalk.

7. *DRACUNCULUS Zeylanicus polyphyllus, caule aspero ex flavo & viridi variegato*. Tourn. Many-leav'd Dragon of Ceylon, with a rough Stalk, variegated with Yellow and Green.

8. *DRACUNCULUS Zeylanicus spinosus, polypodii foliis, radice repente*. Tourn. Prickly Dragon of Ceylon, with polypody Leaves, and a creeping Root.

9. *DRACUNCULUS Americanus, caule aspero puniceo, radice cyclaminis*. Tourn. American Dragon, with a rough scarlet Stalk, and a Root like that of Sowbread.

10. *DRACUNCULUS Americanus scandens*. Tourn. Climbing American Dragon.

11. *DRACUNCULUS Zeylanicus polyphyllus, caule aspero virescente, maculis albicantibus notato*. Tourn. Many-leav'd Dragon of Ceylon, with a rough green Stalk, mark'd with whitish Spots.

All these Sorts of Dragon are very tender Plants (except the Dwarf Canady Kind); and will not live in this Country, unless they are preserved in the warmest Stoves: the several American Sorts grow naturally in the Woods in Jamaica; and other hot Parts of America: the climbing Sorts twist themselves round the Trunks of Trees, into which they fasten their Roots, which are sent forth from their Joints, and rise to the Height of thirty or forty Feet. These climbing Sorts are easily propagated by Cuttings, which being very succulent, may be brought over to England in a Box of dry Hay, if they are packed up separate, so as not to injure each other by the

Moisture,

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Moisture, which is apt to flow out at the Part where they are cut off; which may occasion a Fermentation, and thereby rot the Cuttings. When the Cuttings arrive, they should be planted in small Pots, filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark; being very careful not to let them have too much Moisture until they have taken Root, lest it rot them: When they have taken Root, they must be frequently refreshed with Water, but it must not be given to them in large Quantities; when the Weather is warm, the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants; and when they are grown pretty large, they should be placed in the Bark-bed in the Stove, where they must be placed near some strong Plants, to which they may fasten themselves, otherwise they will not thrive; for though they will send forth Roots at their Joints, which will fasten to the Mortar of the Stove, when placed against the Wall; yet they will not thrive near so well as against a strong Plant, which will afford them Nourishment.

The other Sort are propagated by Off-sets from the Roots; these may be procured from the Countries of their Growth, and should be planted in Tubs of Earth about a Month before they are put on board the Ship to transport them. These Tubs should be placed in a shady Situation, until they have taken Root; but they should not have much Water given to them, lest it rot them. In their Passage, great Care should be had to keep them from Salt-water, as also not to let them have too much Water given them; for if they have a little Water once or twice a Week at most, while they are in a hot Climate, and when they

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come into a cooler Climate, once in a Fortnight, it will be sufficient to water them; and this should be done sparingly, lest it rot them; for if the Tops of the Plants should decay in their Passage, if the Roots are not rotted, they will soon recover, with proper Care.

When the Plants arrive, they should be transplanted into Pots, filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, and gently watered, until they have taken good Root; after which time they will require to be frequently refreshed with Water; but as their Stems are very succulent, they must not have too much Moisture, for that will rot them. These Plants should be constantly kept in the Stove, where in hot Weather they should have fresh Air admitted to them; but in Winter they must be kept very warm, otherwise they cannot be preserved in this Country.

These Plants will rise to the Height of three, four, or five Feet, and will afford a very agreeable Variety amongst other tender Exotic Plants in the Stove.

The Dwarf *Canady* Sort, is pretty hardy, and will endure the Cold of our ordinary Winters in the open Air, provided they are planted in a warm Soil and Situation: If they are planted under Trees, they will thrive much better, than when placed in a more open Situation.

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ELEAGNUS, [from *ἑλαια* an Olive, and *ἄγνος vitex*; because this Plant hath Leaves like those of the Chaste-tree, and a Fruit like

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like an Olive] Oleaster, or Wild Olive.

The Characters are;

It hath a tubulous Flower, consisting of one Leaf, and cut into four Segments, whose Calyx afterward becomes a Fruit shaped like an Olive, inclosing a Stone of the same Form.

The Species are;

1. *ELÆAGNUS orientalis latifolius, fructu maximo.* Tourn. Cor. Eastern broad-leav'd Wild Olive, with a large Fruit.

2. *ELÆAGNUS orientalis angustifolius, fructu parvo oliviformi subdulci.* Tourn. Cor. Eastern Wild Olive, with narrow Leaves, and a small sweet olive-shaped Fruit.

3. *ELÆAGNUS orientalis angustifolius, fructu minimo rotundiori & subacido.* Tourn. Cor. Eastern narrow-leav'd Wild Olive, with a small roundish and acid Fruit.

4. *ELÆAGNUS non spinosus, foliis angustis & longissimis, fructu parvo oliviformi.* Wild Olive without Spines, narrow long Leaves, and a small olive-shaped Fruit.

The first and third Sorts Dr. Tournefort observed growing in several Islands of the *Archipelago*; the second Sort is found in great Plenty upon the Hills in *Spain, Italy*, and some Parts of *Germany*; the fourth Sort is the most common in the *English* Gardens, and hath been by most Botanic Authors mentioned for the second Sort; tho' by comparing of them together, they appear very different; for the Leaves of the second are much shorter than those of the fourth, and the Branches are beset with sharp Thorns between the Leaves; whereas the fourth Sort hath no Spines on it: but where this is a Native, I cannot determine, tho' probably it was found with the second Sort in some of the Southern Parts of *Europe*.

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These Plants may be propagated by laying down the young Shoots in Autumn, which will take Root in one Year, when they may be cut off from the old Trees, and either transplanted into a Nursery for two or three Years, to be trained up, or into the Places where they are to remain. The best Season for transplanting of these Trees, is in the latter End of *February*, or the Beginning of *March*, tho' they may be removed at *Michaelmas*, provided the Roots are mulched to protect them from severe Frost in Winter. These Plants should be placed where they may be protected from strong Winds; for they grow very freely, and are very subject to be split down by the Wind, if they are too much exposed.

These Trees commonly grow to eighteen or twenty Feet high; and when they are intermixed with other Trees of the same Growth, make a pretty Diversity; for the Leaves of these Trees are of a silver Colour, therefore are easily distinguished at a Distance. In *June* these Trees produce great Quantities of small yellowish Flowers of a very strong Scent, and sometimes they produce Fruit in *England*.

ELEPHANTOPUS. [Of *Elephas* an Elephant, and *pus* a Foot] Elephant's-Foot; so called by Monsieur *Vaillant*, because, he says, the under Leaves of the first Sort somewhat resemble an Elephant's Foot.

The Characters are;

It hath a discous Flower, composed of several Florets which are Hermaphrodite, contained in one Flower-cup, which is cut into several Segments almost to the Bottom; the Bottom of the Calyx is flat, and filled with Ovaries, which are beset on the Top with Hairs; the Disks are jointed

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jointed upon a common Placenta, and form a sort of Sheaf garnished with a Foliage.

The Species are ;

1. ELEPHANTOPUS *conyzæ folio*. Vaill. Mem. Acad. Scien. 1719. Elephant's-Foot with a fleabane Leaf.
2. ELEPHANTOPUS *folio sinuato*. Vaill. Mem. Acad. Scien. 1719. Elephant's-Foot with a sinuated Leaf.
3. ELEPHANTOPUS *belenii folio, flore purpurascens*. Elephant's-Foot with an Elecampane-leaf, and purplish Flowers.

The first Sort grows in great Plenty in South-Carolina, where it is a very common Weed ; for from the Earth in which some Plants were brought over from thence, I have frequently had this Plant come up as a Weed. The second and third Sorts are very common in Jamaica, and in several Parts of the Spanish West-Indies ; from whence I have received Seeds and Specimens, which were collected by my late ingenious Friend Dr. William Houstoun.

These Plants are propagated by Seeds, which should be sown on a Hot-bed in the Spring ; and when the Plants are come up, they must be transplanted into Pots filled with light fresh Earth, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root ; then you should let them have a large Share of fresh Air in warm Weather, and give them plenty of Water. With this Management the first and second Sorts will flower in August, and if the Autumn proves favourable, will ripen their Seeds in October ; but the Plants should be placed in a Stove after the Seeds are perfected, if you design to preserve them through the Winter.

The third Sort is hardier than either of the former, and may be

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preserved through the Winter in a Green-house, without any additional Heat ; this Plant dies to the Root every Autumn, and rises again the following Spring ; but it seldom flowers, unless the Season be very warm, or that the Plants are forwarded by a Hot-bed in the Spring. This Plant hath been long known in the European Gardens, under the Title of *Scabiosa Indica Bontii*.

ELEPHAS.

This Plant was so named, from the Resemblance which the Flower has to an Elephant's Head.

The Characters are ;

It hath an anomalous personated Flower, consisting of one Leaf, which hath two distinct Lips ; the upper one resembles an Elephant's Trunk, but the under one is divided into several Parts ; from whose Cup arises the Pointal, fixed like a Nail in the hinder Part of the Flower, which afterward becomes a Fruit divided into two Cells, which contain many oblong Seeds.

The Species are ;

1. ELEPHAS *Italica, flore magno, proboscide surrecta*. Tourn. Italian Elephas, with a large Flower, whose upper Lip or Trunk is erect.
2. ELEPHAS *orientalis, flore parvo, proboscide surrecta*. Tourn. Eastern Elephas, with a small Flower, whose upper Lip or Trunk is erect.
3. ELEPHAS *orientalis, flore magno, proboscide incurva*. Tourn. Eastern Elephas, with a large Flower, whose upper Lip or Trunk is bent downward.

The first Sort grows naturally in some Parts of Italy, from whence the Seeds have been procured by some curious Persons ; but this Plant is very rare in England at present. The other two Sorts were discovered by Dr. Tournefort, in the Levant, who sent the Seeds to the Royal Garden at Paris ; where the Plants

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were raised, and have since been distributed to several curious Persons in *Europe*.

These Plants may be propagated by Seeds, which should be sown on a Bed of light fresh Earth the Beginning of *March*; when the Plants begin to appear, they should be kept clear from Weeds; and in dry Weather they must be frequently watered, which will greatly promote their Growth. When the Plants are about two Inches high, they should be carefully taken out of the Bed, and transplanted, some of them into small Pots, filled with light fresh Earth, and the others into a Bed of fresh Earth in a warm Situation. These Plants must be screened from the Sun until they have taken Root; after which time they may be exposed to the open Air, observing to water them in dry Weather, as also to keep them clear from Weeds. When those Plants, which were planted in Pots, have grown so much as to fill the Pots with their Roots, they must be shaken out of them, and their Roots pared, and then put into Pots a little larger than the former; which must be filled with fresh Earth, and then placed in an open Situation, observing to water them duly in dry Weather. In this Place they may remain until the Beginning of *November*, when they should be removed, and placed under a Hot-bed Frame, where they may be sheltered from severe Frost in Winter; but in mild Weather they should have as much fresh Air as possible; so that the Glasses of the Hot-bed must be taken off every Day, when the Weather is good. In the Spring some of these Plants may be shaken out of the Pots, and planted in a warm Border, where they will thrive, and produce their Flowers, and sometimes will perfect their Seeds in this Country.

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Those Plants which are planted in a Bed of good Earth, will require no other Culture but to keep them clear from Weeds, and in dry Weather they must be duly watered; but if the Winter should prove very severe, it will be proper to cover them with Mats or Pease-haulm, to protect them from the Frost; and in the Spring, the Plants may be taken up, and transplanted into the Borders of the Pleasure-garden, where they are designed to remain. As these Plants are in Danger of being destroyed in very cold Winters, it will be adviseable to keep two or three Plants of each Kind in Pots, which may be sheltered from severe Frost, in order to preserve the *Species*.

ELICHRYSUM, Goldylocks, Eternal Flower, and Golden Cassidony.

The *Species* omitted in the former Volumes, are;

1. ELICHRYSUM *angustissimo folio*. Tourn. The most narrow-leav'd golden Cassidony.

2. ELICHRYSUM *umbellatum maritimum Hispanicum*. Tourn. Spanish maritime umbellated golden Cassidony.

3. ELICHRYSUM *seu Stæchas citrina latifolia*. C. B. P. Broad-leav'd golden Cassidony.

4. ELICHRYSUM *Germanicum, calyce ex aureo rutilante*. Tourn. German Goldylocks, with a reddish golden Empalement.

5. ELICHRYSUM *Germanicum, calyce sanguineo*. Tourn. German Goldylocks, with a blood-coloured Empalement.

6. ELICHRYSUM *angustifolium incanum, maximo flore*. Tourn. Hoary narrow-leav'd golden Cassidony, with a large Flower.

7. ELICHRYSUM *lavendulae folio breviori, floribus conglobatis minime luteis*. D. Sherard. Raii Sup. Golden Cassidony,

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Cassidony, with a shorter Lavender-leaf, and conglobated Flowers, which are very little yellow.

8. *ELICHRYSUM latifolium Hispanicum, corymborum squamulis, & floribus amplis sulphureis. Pluk. Almag.* Broad-leav'd Spanish golden Cassidony, with large yellow Flowers.

9. *ELICHRYSUM latifolium villosum, alato caule, odoratissimum. Pluk. Phyt.* The most sweet-smelling hairy broad-leav'd golden Cassidony, with a winged Stalk.

10. *ELICHRYSUM orientale, foliis amplioribus subrotundis. Tourn.* Eastern golden Cassidony, with larger roundish Leaves.

11. *ELICHRYSUM orientale simile, calyce florum argenteo. Tourn.* Golden Cassidony resembling the Eastern one, with a silver Empalement.

12. *ELICHRYSUM orientale verum angustifolium. Tourn.* Narrow-leav'd Eastern Spring golden Cassidony.

13. *ELICHRYSUM orientale, leucoi folio viridi. Tourn.* Eastern golden Cassidony, with a green July-flower-leaf.

14. *ELICHRYSUM orientale glutinosum, lavendulae folio. Tourn.* Glutinous Eastern golden Cassidony, with a Lavender-leaf.

15. *ELICHRYSUM Africanum, folio oblongo angusto, flore rubello postea aureo. Boerb.* African golden Cassidony, with a narrow oblong Leaf, and a red Flower turning to a yellow.

16. *ELICHRYSUM Africanum lanuginosum latifolium, calyce floris argenteo & amplissimo. Oldenl.* Broad-leav'd woolly African golden Cassidony, with a very large silver Empalement.

17. *ELICHRYSUM Africanum frutescens, coridis folio. Oldenl.* Shrubby African Goldylocks, with a Coris-leaf.

18. *ELICHRYSUM Africanum incanum tomentosum, foliis subrotundis. Oldenl.* Woolly hoary African Goldylocks, with roundish Leaves.

19. *ELICHRYSUM Africanum um-*

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bellatum odoratum luteum. Oldenl. Yellow sweet-smelling umbellated African Goldylocks.

The first Sort here mentioned is very common in the *English* Gardens, and has been taken for the *Stæchas citrina* of the Dispensatory, by many good Botanists, but is very different from it. This will rise to the Height of three Feet, and become shrubby; it is hardy, and may be easily propagated by planting Cuttings of it, in *April*, in a shady Border, observing to refresh them with Water, and keep them clear from Weeds. These Cuttings will have made good Roots in about two Months; when they may be taken up with a Ball of Earth to their Roots, and transplanted where they are designed to remain. These Plants may be kept in a regular Form, by pruning off their Side Branches, and supporting them with Stakes: but the Shoots must not be shortened in the Spring or Summer Months, for that will prevent their flowering.

The thirteen following Sorts are more rare in *England* than the first, and are of humbler Growth. These may be propagated by Slips, which should be planted in Pots, filled with light rich Earth, and then plunged into a very moderate Hot-bed of Tanners Bark; observing to screen them from the Sun until they have taken Root, when they should be injured to bear the open Air by Degrees. In Summer these Plants should be placed abroad in a sheltered Situation, observing to water them duly in dry Weather: but in Winter they should be placed under a Hot-bed Frame, where they must have as much free Air as possible in mild Weather; for they are pretty hardy, and only require to be protected from severe Frost. The following Spring some of the Plants may be shaken

out of the Pots, and planted in a warm Border near the Shelter of a Wall; where they will produce their Flowers, and may abide several Years, provided the Winters do not prove very severe. However, it will be proper to keep a Plant or two of each Kind in Pots, which may be sheltered in Winter; so that, if those which were planted abroad should be destroyed, these may be preserved to maintain the Sorts.

The five last-mentioned Kinds are somewhat tenderer than the former; and require a little more Care to preserve them in Winter. These may be propagated by Cuttings, in the same manner as the former; which when rooted must be planted in Pots, filled with light fresh Earth, and placed in a shady Situation until they have taken new Root; after which time they may be exposed with other hardy Exotic Plants, in a warm Situation, where they may be defended from strong Winds; in which Place they may remain until the middle of *October*, at which time they should be removed into an open airy Green-house; where they should have as much free Air as possible in mild Weather, to prevent their making long weak Shoots, which will not only render them unsightly, but also cause them to flower sparingly. These Plants require to be frequently watered in Winter, when the Weather is mild; which may soon be discovered by the hanging of their Leaves; but at this Season they must not have so large Quantities of Water as in Summer, for that will sometimes rot them.

Some of these Sorts may be trained up to the Height of three or four Feet, and if they are rightly managed, may be reduced to regular Heads; whereby they will become very ornamental in a good Garden:

for as they continue to produce their Flowers through most of the Summer Months, and many of them produce Flowers late in Autumn, which will continue in Beauty the greatest Part of the Winter Season; so they afford an agreeable Variety at a Season when other Flowers are very scarce. Besides, the different Appearance which these Plants have from their hoary and woolly Leaves, make an agreeable Diversity amongst other Plants in the Green-house, when they are wholly divested of their Flowers.

The Flowers of all these Sorts of Plants, if they are gathered when in Perfection, and laid in a dry Place where they may be kept from Dust and Air, will continue fresh and in Beauty for several Years; so that from the several Varieties of these Flowers, a Basin or Flower-pot may be furnished in Winter, when few other Flowers can be procured, which will have a pretty Effect in Rooms or Halls; but the Stalks of these Flowers must not be placed in Water, nor should any Moisture come to their Flowers, for that will decay them.

EPHEDRA, Shrubby Horse tail, *vulgò*.

The Characters are;

It hath an apetalous Flower, consisting of many Stamina, which are for the most part barren; for the Embryo's grow on different Parts of the same Plant, or on other Plants which have no conspicuous Flowers: these Embryo's afterward become soft Berries, in which are contained many oblong Seeds.

The Species are;

1. EPHEDRA *maritima major*. Tourn. Greater Sea Horse-tail.
2. EPHEDRA *maritima minor*. Tourn. Lesser Sea Horse-tail.
3. EPHEDRA *five Anabasis*. Bellon. Climbing Sea Horse-tail.

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4. *EPHEDRA Hispanica arbore-scens, tenuissimis & densissimis foliis.* Tourn. Spanish tree-like Horse-tail, with narrow clustery Leaves.

5. *EPHEDRA Cretica, tenuioribus & rarioribus flagellis.* Tourn. Candy Horse-tail, with narrower and fewer Branches.

6. *EPHEDRA orientalis procerior, flagellis durioribus, & mediæ crassitiei.* Tourn. Taller Eastern Horse-tail, with harder and thicker Branches.

The first of these Plants is pretty common in the *English* Gardens, but the others are at present somewhat rare in this Country; and are only cultivated in Botanic Gardens for the sake of Variety, there being little Beauty in them, nor are they used in Medicine.

They may be propagated by Offsets, which they produce in great Plenty; for they creep under Ground by their Roots, and send forth Suckers, which may be taken off to transplant in the Spring. They love a pretty moist strong Soil, and will endure the Cold of our ordinary Winters very well in the open Air. The first, fourth and sixth Sorts, will rise to the Height of three or four Feet, provided their Roots are kept pretty clear from Suckers; otherwise they will spread very far, and send forth great Plenty of Suckers, which will prevent their rising in Height. Some of these Plants were formerly preserved in Pots, and were housed in Winter; but by later Experience, they are found to thrive better in the full Ground.

EUPATORIOPHALACRON,
Naked-headed Hemp-agrimony.

The Characters are;

It is a corymbiferous Plant, which in some Species have radiated Flowers, whose Florets are Hermaphrodite, and the Half-florets are Female; but in other Species the Flowers are produced in a Disk, and are for the most

part Hermaphrodite. The Ovaries have naked Heads, and are placed on a woolly Placenta; all these Parts are contained in a Flower-cup, which is divided into many Parts to the Placenta: To these Notes must be added, the Leaves growing opposite on the Branches.

The Species are;

1. *EUPATORIOPHALACRON balsaminæ fœminæ folio, flore albo discoide.* Vaill. Naked-headed Hemp-agrimony, with a Female-halfsam-leaf, and a white discous Flower.

2. *EUPATORIOPHALACRON menthæ arvensis folio.* Vaill. Naked-headed Hemp-agrimony, with a Water-calamint-leaf.

3. *EUPATORIOPHALACRON foliis angustis, rarius dentatis, flore radiato.* Vaill. Naked-headed Hemp-agrimony, with narrow indented Leaves, and a radiated Flower.

4. *EUPATORIOPHALACRON folio trinervi subrotundo, flore minore luteo radiato.* Vaill. Naked-headed Hemp-agrimony, with a roundish trinervated Leaf, and a smaller yellow radiated Flower.

5. *EUPATORIOPHALACRON folio trinervi subrotundo, flore majore luteo radiato.* Vaill. Naked-headed Hemp-agrimony, with a roundish trinervated Leaf, and a larger yellow radiated Flower.

6. *EUPATORIOPHALACRON persicæ folio trinervi, flore minimo luteo discoide.* Vaill. Naked-headed Hemp-agrimony, with a trinervated Peach-leaf, and the least yellow discous Flower.

7. *EUPATORIOPHALACRON scrophulariæ folio trinervi.* Vaill. Naked-headed Hemp-agrimony, with a trinervated Figwort-leaf.

8. *EUPATORIOPHALACRON scrophulariæ folio trinervi, caule alato.* Vaill. Naked-headed Hemp-agrimony, with a trinervated Figwort-leaf, and a winged Stalk.

9. EUPATORIOPHALACRON *Indicum, scrophulariæ folio, capitulo parvo radiis quinis ad basin ornato, hispido & glutinoso. Aët. Phil.* Indian naked-headed Hemp-agrimony, with a Figwort-leaf, and a small Head adorned with five Rays, which are prickly and glutinous.

10. EUPATORIOPHALACRON *Americanum procumbens, origani folio, flore luteo. Houst.* Trailing American naked-headed Hemp-agrimony, with an Origany-leaf, and a yellow Flower.

All these Plants are annual, and should be sown every Spring on a Hot-bed, and must be transplanted afterward to another, in order to bring them forward, otherwise they they will not perfect their Seeds in this Country; for most of them are Natives of the warmer Parts of *America*: therefore they must be treated after the manner of *Amaranthis*, bringing them forward on Hot-beds until *June*, about the middle of of which Month, they may be transplanted into Beds or Borders of rich Earth; where, if they are duly watered in dry Weather, they will produce their Flowers in *July*, and their Seeds will ripen in *September*. There is no great Beauty in these Plants; therefore they are seldom cultivated but in Botanic Gardens for the sake of Variety.

EUPATORIUM, Water Hemp-agrimony.

The *Species* omitted in the former Volumes, are;

1. EUPATORIUM *scandens, foliis subrotundis lucidis, floribus spicatis albis. Houst.* Climbing Hemp-agrimony, with roundish shining Leaves, and white Flowers growing in a Spike.

2. EUPATORIUM *Americanum tenecrii folio, flore niveo. Vaill. Mem. Acad. Scien.* American Hemp-agrimony,

with a Tree-germander-leaf, and a white Flower.

3. EUPATORIUM *Virginianum, salviæ foliis longissimis acuminatis, perfoliatum. Pluk. Almag. Virginian* Hemp-agrimony, with long sage-like Leaves closely surrounding the Stalk.

4. EUPATORIUM *betonicæ folio glabro & carnosò, flore cæruleo. Houst.* Hemp-agrimony, with a fleshy smooth Betony-leaf, and a blue Flower.

5. EUPATORIUM *Americanum arborescens, mori folio, floribus albican-tibus. Houst.* Tree-like American Hemp-agrimony, with a Mulberry-leaf, and white Flowers.

6. EUPATORIUM *Americanum frutescens, balsaminæ luteæ foliis, nigris maculis punctatis. Houst.* American shrubby Hemp-agrimony, with yellow Balsamine-leaves spotted with black Marks.

7. EUPATORIUM *Peruvianum, folio subrotundo trinervi utrinque acuto, flore cæruleo. Vaill. Mem. Acad. Scien.* Peruvian Hemp-agrimony, with roundish Leaves ending in a sharp Point, and blue Flowers.

The first, fourth, fifth, sixth and seventh Sorts, are somewhat tenderer than the others mentioned in the former Volumes, and require to be sheltered in Winter: the first Sort dies to the Root every Autumn, and rises again the following Spring: This may be propagated by parting of the Roots in *April*, just before they begin to shoot. This Plant must be frequently watered in dry Weather, during the Season of its Growth; but in Winter, when the Stems are decayed, it should have but little Water; for too much Wet at that Season will rot the Roots.

The second, fourth, sixth and seventh Sorts, may be propagated by Cuttings during the Summer Season; which should be planted into Pots, filled

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filled with fresh light Earth, and plunged into a moderate Hot-bed, where they should be shaded and watered until they have taken Root, when they may be exposed to the open Air by Degrees. These Plants may be placed in the open Air in Summer, among other hardy Exotic Plants; but in Winter they should be placed in a good Green-house, observing to let them have the free Air in mild Weather; and they must be frequently refreshed with Water. With this Management these Plants will flower every Year, and may be allowed a Place in such Gardens where other Exotic Plants are preserved.

EUPHRASIA, Eye-bright.

The Characters are;

It hath an anomalous personated Flower of one Leaf, divided into two Lips; the upper one upright, and parted into several Divisions; and the lower one is divided into three Parts, each of which is again divided into two: out of the Flower-cup rises the Pointal, which afterwards turns to a Fruit, or oblong Husk, divided into two Parts, and replete with small Seeds.

The Species are;

1. EUPHRASIA officinarum. C. B. P. Common Eye-bright.

2. EUPHRASIA ramosa pratensis, flore albo. Hort. Eyst. Branched meadow Eye-bright, with a white Flower.

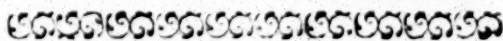
3. EUPHRASIA minus ramosa, flore ex caeruleo-purpurascete. Hort. Eyst. Eye-bright less branched, with a purple blue Flower.

4. EUPHRASIA Alpina parva, luteis floribus. C. B. P. Small Mountain Eye-bright, with yellow Flowers.

The first Sort is very common in the Meadows in most Parts of England, where the Herb-women gather it to supply the Markets, it being

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very much used for Disorders of the Eyes. The other Sorts are not common in England, nor are they ever gathered for Use: they are all of them annual Plants, which drop their Seeds in the Places of their Growth, and rise again without any Culture. They are difficult to keep in Gardens, for unless their Seeds are permitted to fall when ripe, and the Plants suffered to come up in the same Places, they seldom succeed; nor do their Seeds scarce ever grow, if they are kept out of the Ground till Spring; wherefore they must be sown soon after they are ripe. But as the only Sort which is used in Medicine grows plentifully in the Fields in this Country, it is not cultivated in Gardens. The best time to gather this Herb for Use, is in June, when it is in Flower.



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FAGONIA. This Plant was so named by Dr. Tournefort, in Honour to Dr. Fagon, who was Superintendent of the Royal Garden at Paris.

The Characters are;

The Flower consists of many Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Centre rises the Pointal, which afterward becomes a chanelled round pointed Fruit, consisting of many Cells, and composed of many Husks, each containing one roundish Seed.

The Species are;

1. FAGONIA Cretica spinosa. Tourn. Thorny Trefoil of Candy.

2. FAGONIA Hispanica non spinosa. Tourn. Spanish Fagonia without Thorns.

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The first of these Plants is peculiar to *Crete*, from whence it hath been brought by some curious Botanists, and is preserved in Botanic Gardens. The other Sort was discovered by Dr. *Tournefort* in *Spain*, who sent the Seeds to the Royal Garden at *Paris*; from whence it hath been distributed to several curious Botanic Gardens.

These Plants may be propagated by Seeds, which should be sown in *March*, on a Border of light Earth, covering them about a quarter of an Inch with Earth; in *April* the Plants will appear above Ground, when they should be carefully weeded, and in dry Weather they must be frequently watered, which will greatly promote their Growth; toward the latter End of *May* the Plants will be strong enough to transplant, at which time they should be carefully taken up, and planted about six Inches asunder, in a Bed or Border of fresh light Earth, observing to shade them from the Sun until they have taken Root; after which time they must be kept clear from Weeds, and in dry Weather they should be refreshed with Water. In this Place the Plants may remain till *Michaelmas*, when they should be taken up with Balls of Earth to their Roots, and transplanted into the Borders where they are designed to remain; and the following Summer they will produce their Flowers, when they will add to the Variety amongst other hardy Plants.

FICOIDEA. [This Plant is so called from its Resemblance to the *Ficoidea*.]

The Characters are;

It hath a flameous Flower, whose Calyx is divided into five roundish Segments: when the Flower is past, the Pointal (which is terminated by five Threads) becomes a five-cornered

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Fruit; which when ripe opens into five Cells, each of which is filled with small Seeds.

The Species are;

1. **FICOIDEA** *procumbens*, *portulacæ folio*. *Acad. Reg. Scien.* Trailing *Ficoidea*, with a purslain Leaf.

2. **FICOIDEA** *Hispanica annua*, *folio longiore*. *Vaill.* Annual Spanish *Ficoidea*, with a longer Leaf.

These two Plants are propagated by Seeds, which should be sown on a Hot-bed in the Spring; and when the Plants are come up, they should be each transplanted into a Half-penny Pot, and plunged into another moderate Hot-bed, observing to let them have Air in proportion to the Warmth of the Season; and they must be frequently refreshed with Water. Toward the End of *June*, they should be inured to bear the open Air by Degrees; and in *July* they may be removed into the open Air, and placed amongst *Ficoidea*'s, and other hardy succulent Plants, where they will flower, and produce ripe Seeds in Autumn.

FICOIDES, Fig-marygold.

To this Article add;

1. **FICOIDES** *Neapolitana*, *flore candido*. *H. L.* Neapolitan *Ficoides*, with a white Flower, commonly called *Egyptian Kali*.

2. **FICOIDES** *folio viridi triangulari tenuiore*, *flore luteo in extremitate rubente*. *Schw. Cat.* Fig-marygold, with a narrow green triangular Leaf, and a yellow Flower with red Tops.

3. **FICOIDES** *seu Ficus aizoides Africana*, *folio viridi, micis quasi glaciatis splendidibus ornato, flore coccineo*. *Boerb. Ind.* 1. African *Ficoides* with green Leaves, beset with shining glass-like Drops, and a scarlet Flower.

4. **FICOIDES** *Africana, folio calami forme, flore flavescente*. African *Ficoides*,

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Ficoides, with a quill-shaped Leaf, and a yellowish Flower.

5. *FICOIDES mfricana procumbens, foliis semper-vivi congestis, flore candido.* African trailing Ficoides, with houseleek Leaves, and a white Flower.

6. *FICOIDES Africana procumbens, foliis semper-vivi expansis, flore flavo-virescente.* African trailing Ficoides, with an expanded houseleek Leaf, and a yellowish Flower.

The first Kind is an annual Plant, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted each into a separate small Pot, filled with light sandy Earth, and plunged into a moderate Hot-bed of Tanners Bark; being careful to admit a large Share of Air to them in warm Weather, otherwise they will draw up weak. In *July* these Plants should be inured to bear the open Air by Degrees, when they should be taken out of the Hot-bed, and placed in a warm Situation, where they will produce their Flowers; and if the Autumn proves favourable, will perfect their Seeds. This is the *Egyptian Kali*, or Glasswort, whose Ashes are so useful in making of Glass, and hard Soap.

The other Sorts are propagated by Cuttings, in the manner directed in the former Volumes of the *Gardeners Dictionary*.

FRAGARIA, Strawberry.

To this *Article* must be added;

1. *FRAGARIA fructu globoso majore suavissimo.* The Globe-hautboy Strawberry.

2. *FRAGARIA fructu parvo ex albo-virescente.* Strawberry with a small greenish white Fruit.

The first of these Sorts is now much cultivated by most curious Persons near *London*, it being a more plentiful Bearer than the common

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Hautboy, and is a better tasted Fruit. In a kindly Season I have seen this Fruit as large as Walnuts, and of an extraordinary fine Flavour. This may be cultivated in the same manner as the common Hautboy Strawberry, and must be planted at the same Distance.

The second Sort is a very firm Fruit, about the Size of the Wood-strawberry, or a little larger; this is greatly esteemed for the Firmness of the Fruit, and the quick agreeable Flavour, which some Persons have imagined to resemble the Pine-apple, and from thence have given it the Name of the Pine-apple Strawberry. This may be propagated in the same manner as the Wood-strawberry, but should be every Autumn carefully divested of Suckers; otherwise they will grow very thick, and produce but little Fruit.

The Chili-strawberry, which is described in the former Volumes of the *Gardeners Dictionary*, is now but little esteemed in *England*, the Fruit being ill-tasted. This Kind has produced Fruit of late Years in many Gardens; but in general the Fruit is not so large as those of the Globe-hautboy Strawberry, and is of a very irregular Form: this Sort produces more Fruit where they grow neglected, and under Shade, than when they are planted in an open Situation, and are cultivated with great Care.

FRANGULA, Berry-bearing Alder.

To this *Article* must be added;

1. *FRANGULA rugosiflora & ampliore folio.* Tourn. Berry-bearing Alder, with a larger and rougher Leaf.

2. *FRANGULA montana pumila saxatilis, folio subrotundo.* Tourn. Low mountain rocky berry-bearing Alder, with a round Leaf.

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3. *FRANGULA montana pumila saxatilis, folio oblongo. Tourn.* Low mountain rocky berry-bearing Alder, with an oblong Leaf.

4. *FRANGULA semper-virens, folio rigido subrotundo. Hort. Elth.* Ever-green berry-bearing Alder, with a round stiff Leaf, commonly called the *Hottentot Cherry*.

The first Sort is less common than that in the former Volumes, in *England*; but may be propagated in the same manner as hath been directed for that Sort, and requires a moist Situation; this is much like the former in its Growth, and may be admitted for Variety.

The second and third Sorts are of humble Growth, seldom rising above two Feet high; these grow on the *Pyrenean Mountains*, and are seldom preserved unless in Botanic Gardens for Variety: they may be increased by laying down their Branches, but must have a strong Soil, somewhat drier than what has been directed for the two former.

The fourth Sort is a Native of *Africa*, and has been a long time preserved by the Curious in their Gardens, under the Title of *Cerasus Hottentotorum*, or *Hottentot Cherry*; but it having produced Flowers and Fruit in the Garden of Dr. *James Sberard of Eltham*, is figured and described by Dr. *Dillenius*, in the *Hortus Elthamensis*, by the Name I have here given it. This Plant may be propagated by Cuttings, which should be the former Year's Shoots, and must be planted the latter End of *April*, in Pots filled with fresh rich Earth, which should be plunged into a moderate Hot-bed of Tanners Bark, being careful to shade the Glasses in the Heat of the Day, as also to refresh them often with Water; this must be duly observed, until the Cuttings have taken Root, which can-

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not be expected sooner than the middle of *July*, when they must be injured to bear the open Air by Degrees; and toward the End of the Month, they must be taken out of the Hot-bed, and placed in the open Air, in a warm Situation, where they may be screened from violent Winds; in this Place they may remain till the Beginning of *October*, when they must be removed into the Green-house, and placed in a warm Situation; and during the Winter Season, they must be frequently refreshed with Water, but this must not be given to them in too large Quantities, while they continue in the House. In the Spring these Plants may be shaken out of the Pots, and separated, putting each into a small Pot filled with fresh rich Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be exposed to the open Air, with Myrtles, Oranges, and other hardy Exotic Plants, till Autumn, when they must be housed with those Trees. This Sort will grow to the Height of twelve or fourteen Feet, and may be trained up with a regular Stem; wherefore it deserves a Place in every curious Green-house; for their thick shining ever-green Leaves make a pleasing Variety among other hardy Exotic Plants.

FRAXINELLA, White Dittany.

The *Species* omitted in the former Volumes, are;

1. *FRAXINELLA minor purpurea Belgarum. H. R. Par.* Small purple White Dittany of *Holland*.

2. *FRAXINELLA niveo flore. Clus. Hist.* White Dittany with snow-white Flowers.

These two Sorts are at present more rare in *England*, than the two other Kinds described in the former Volumes; but of late they have been pro-

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procured by some curious Persons from abroad. These are as hardy as the other Sorts, and may be propagated in the same manner; and as they produce very beautiful Flowers, they add greatly to the Variety in the Flower-garden; and requiring but little Care to cultivate them, they deserve a Place in every good Garden.

FROST.

In the Year 1723, there was a remarkable Frost, which continued for some Months, and destroyed a great Number of Trees and Plants in several Parts of *Europe*; a brief Account of which may not be improper to be here inserted.

The Autumn began with cold North and East Winds, and early in *November* the Nights were generally frosty, though the Frost did not enter the Ground deeper than the Sun thaw'd the succeeding Days: but towards the End of *November*, the Winds blew extremely cold from the North; which was succeeded by a great Snow, which fell in such Quantities in one Night, as to break off large Arms, as also the Tops of many ever-green Trees, on which it lodged. After the Snow had fallen, it began to freeze again, the Wind continuing to blow from the North; the Days were dark and cloudy for some time, but afterwards it cleared up, and the Sun appeared almost every Day; which melted the Snow where exposed to it, whereby the Frost penetrated deeper into the Ground. It was observable, that during these clear Days, a great Mist or Vapour appeared in the Evenings, floating near the Surface of the Ground till the Cold of the Night came on, when it was suddenly condensed and disappeared. About the 8th of *December* the Nights were extremely cold; the Spirits in the

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Thermometer fell eighteen Degrees below the freezing Point; and on the 10th of the same Month, the Frost was as severe as had been known in the Memory of Man; the Spirits in the Thermometer fell to twenty Degrees below the freezing Point. At this time vast Numbers of *Laurustinus's*, *Phillyrea's*, *Alaternus's*, *Rosemary*, *Arbutus*, and other ever-green Trees and Shrubs, began to suffer; especially such as had been trimmed up to Heads with naked Stems, or had been clipped late in the Autumn. At this time also there were great Numbers of large deciduous Trees disbarked by the Frost; as *Pear-trees*, *Plane-trees*, *Walnut-trees*, with many other Sorts; and it was chiefly on the West and South-West Side of the Trees, that the Bark came off.

About the middle of *December* the Frost abated of its Intensity, and seemed to be at a Stand, till the 23d of the same Month, when the Wind blew extreme sharp and cold from the East, and the Frost increased again, continuing very sharp till the 28th Day, when it began to abate again, and seemed to be going off, the Wind changing to the South; but it did not continue long in this Point, before it changed to the East again, and the Frost returned, tho' it was not so violent as before.

Thus the Weather continued for the most part frosty, till the middle of *March*, with a few Intervals of mild Weather, which brought forward some of the early Flowers; but the Cold returning, soon destroyed them; so that those Plants which usually flower in *January* and *February*, did not this Year appear till *March*; and before they were fully blown, were cut off by the Frost; of this Number were all the Spring *Crocus's*, *Hepatica's*, *Persian Iris's*,
Black

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Black Hellebore's, Mezerion's, with some others.

The Cauliflower Plants which were planted out of the Beds into the open Ground, during the Intervals between the Frost, were most of them destroyed, or so much cut, that they lost most of their Leaves; the early Beans and Pease were most of them killed, and many Fruit and Forest Trees, which had been lately removed, were quite destroyed. The Loss was very great to some curious Persons, who had been many Years endeavouring to naturalize great Numbers of Exotic Trees and Shrubs, abundance of which were either totally killed, or died to the Surface of the Ground: amongst this Number there were many Sorts destroyed, which had endured the open Air many Years, without receiving the least Injury from the Cold; such as Passion-flowers, Cork-tree, Cistus's, Rosemary, Stoechas, Sage, Mastic, and some others. In some Places the young Ash and Walnut-trees were killed; but when the Frost went off, there appeared to have been much more Damage done in the Gardens, than there really was; which occasioned many People to dig up and destroy large Quantities of Trees and Shrubs, which they supposed were killed; whereas those who had more Patience, and suffered them to remain, fared better; for great Numbers of them shot out again, some from their Stems and Branches, and others from their Roots, the following Summer.

Nor was the Frost more severe in *England*, than in other Parts of *Europe*; but on the contrary, in comparison, favourable; for in the Southern Parts of *France*, the Olives, Myrtles, Cistus's, Alaternus's, and several other Trees and Shrubs, which grow there almost spontane-

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ously, were either destroyed, or at least were killed to their Roots, and about *Paris*, and the Northern Parts of *France*, the Buds of their Fruit-trees were destroyed, although they remained closed; so that there were very few Blossoms which opened that Spring. The Fig-trees were in several Parts of *France* quite killed; and in *England*, their tender Branches were destroyed; so that there was very little Fruit on those Trees the following Summer, except where they were protected from the Frost.

In *Holland* the Pines and Firs, with several other Trees, which are Natives of cold Countries, were greatly injured by the Cold; and most of the Trees and Shrubs, which were brought from *Italy*, *Spain*, or the South Parts of *France*, which had been planted in the full Ground in that Country, were intirely killed; though many other Sorts, which had been brought from *Virginia* and *Carolina*, escaped very well in the same Gardens. But the Person who suffered most in that Country, was the learned Dr. *Boerhaave*, who had been several Years endeavouring to naturalize as many Exotic Trees and Shrubs as he could possibly obtain from the several Parts of the World; great Numbers of which were intirely destroyed by the Frost this Winter.

In some Parts of *Scotland* they not only lost many of their curious Flowers, Plants and Trees; but great Numbers of Sheep and other Cattle were buried under the Snow, where they perished; and many poor People, who went to look after their Cattle, were equal Sufferers with them, being buried in the Snow, which in some Places fell eight or nine Feet deep in one Night.

It has been observed by Thermometers, when that kind of hovering
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Lambent Fog arises, (either Mornings or Evenings) which frequently betokens fair Weather, that the Air, which in the preceding Day was much warmer, has upon the Absence of the Sun become many Degrees cooler than the Surface of the Earth; which being near 1500 times denser than the Air, cannot be so soon affected with the Alternacies of Heat and Cold: whence 'tis probable, that those Vapours which are raised by the Warmth of the Earth, are by the cooler Air soon condensed into a visible Form. The same Difference has been observed between the Coolness of the Air, and the Warmth of Water in a Pond, by putting a Thermometer, which hung all Night in the open Air in Summer-time, into the Water, just before the rising of the Sun, when the like Reek or Fog was rising on the Surface of the Water.

FUCHSIA. This Plant was so named by Father *Plumier*, who discovered it in *America*, in Honour to the Memory of *Leonard Fuchsius*, a learned Botanist.

The Characters are;

It hath a funnel-shaped Flower consisting of one Leaf, and divided into several Parts at the Brim; whose Cup afterward becomes a roundish soft fleshy Fruit, which is divided into four Cells, which are full of roundish Seeds.

We have but one Sort of this Plant, viz.

FUCHSIA triphylla, flore coccinea.
Plum. Nov. Gen. Three-leav'd Fuchsia, with a scarlet Flower.

This Plant is a Native in the warmest Parts of *America*; it was discovered by Father *Plumier*, in some of the *French Islands* in *America*, and was since found by the late Dr. *William Houssoun*, at *Carthage* in *New Spain*; from whence he sent the Seeds into *England*.

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This is propagated by Seeds, which must be sown in Pots filled with rich light Earth, and plunged into a Hot-bed of Tanners Bark, observing to moisten the Earth as often as it appears dry; and if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats; but in the Day-time, when the Sun is warm, the Glasses should be raised with Stones, to let out the Steam which may arise in the Bed, and to admit fresh Air. In about a Month after the Seeds are sown, the Plants will begin to appear, when they should be carefully cleared from Weeds, and frequently refreshed with Water to promote their Growth; and when they are about two Inches high, they should be shaken out of the Pots, and separated carefully; then plant each into a separate small Pot, filled with light rich Earth, and plunge them again into a Hot-bed of Tanners Bark, being careful to screen them from the Sun, until they have taken new Root; after which time they must have fresh Air admitted to them every Day in proportion to the Warmth of the Season, and should be frequently watered. When the Plants have grown so as to fill the Pots with their Roots, they must be transplanted into larger Pots, and plunged into the Hot-bed again, being careful to water them; and if they hang their Leaves on removing, they should be screened from the Sun until they have taken new Root: as the Season advances, the Glasses of the Hot-bed should be raised higher, to admit a greater Share of Air to the Plants, to prevent their drawing up weak; and when the Plants are grown so tall as to reach the Glasses, they should be removed into the Bark-stove, and plunged into the Tanners Bark. In Winter these Plants require to be kept

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kept very warm, and at that Season they must not have so much Water as in Summer, but it must be often repeated.

These Plants are too tender to thrive in the open Air in this Country, even in the hottest Part of the Year; therefore they should constantly remain in the Stove, observing to let in a large Share of fresh Air in Summer, but in Winter they must be kept warm: with this Management the Plants will produce their Flowers, and make a beautiful Appearance in the Stove, amongst other tender Exotic Plants.

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GALEGA, Goats-rue.

To this Article must be added;

1. *GALEGA Americana, foliis subrotundis, floribus coccineis. Houtt.* American Goats-rue, with roundish Leaves, and scarlet Flowers.

2. *GALEGA Americana frutescens, flore purpureo, foliis sericeis. Plum.* Shrubby American Goats-rue, with silken Leaves.

The first Sort was discovered by the late curious Botanist Dr. William Houstoun, at Campechy, from whence he sent the Seeds into Europe. This Plant is annual, and must be raised on a Hot-bed early in the Spring; and when they are fit to transplant, should be each put into a separate Half-penny Pot, filled with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to screen them from the violent Heat of the Sun, until they have taken Root; after which time they should have a large Share of fresh

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Air admitted to them in warm Weather, and must be frequently watered. When these Plants have filled the Pots with their Roots, they should be gently shaken out, being careful to preserve as much of the Earth to their Roots as possible, and put into Pots a Size larger, filling them up with the like fresh Earth, and plunged into the Hot-bed again, observing to water and give Air to them as before: with this Management they will flower in July, and in September they will perfect their Seeds, and the Plants will soon after decay.

The second Sort is also a Native of America, and was discovered by Father Plumier; this is also propagated by Seeds, which should be sown on a Hot-bed in the Spring; and when the Plants are come up, they must be transplanted, and treated in the same manner as hath been directed for the first Sort; but this being a shrubby Plant of a longer Continuance, must be placed in the Bark-stove in the Winter, and should be treated after the manner of other tender Exotic Plants; for it seldom flowers until the third Year, and if the Plants are removed abroad in Summer, will scarcely ever flower in this Country.

GALEOPSIS, Stinking Dead-nettle.

To this Article must be added;

1. *GALEOPSIS angustifolia Grætica viscosa. Boerb. Ind. alt.* Narrow-leav'd viscous stinking Dead-nettle of Candy.

2. *GALEOPSIS procerior fætida spicata. Tourn.* Common Hedge-nettle.

3. *GALEOPSIS fœve urtica iners, flore luteo. J. B.* Yellow Archangel, or Dead-nettle,

4. *GALEOPSIS procerior fætidissima, spica longissima alba. Michel.*
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The most stinking taller Hedge-nettle, with a long white Spike.

The first Sort is a Plant of humbler Growth, than either of the two Sorts mentioned in the former Volumes; this seldom rises above a Foot high, nor doth it ever become so woody; it is very clammy, and has a very strong bituminous Scent. This may be propagated by sowing of the Seeds in *March*, on an open Bed of light Earth; and when the Plants begin to appear, they should be carefully cleared from Weeds, and in dry Weather must be often refreshed with Water. When the Plants have obtained Strength enough to be transplanted, they should be carefully taken up; and some of them must be put into Half-penny Pots, filled with fresh light Earth; and the others may be planted in warm Borders, observing to water and shade them until they have taken Root; after which time, those which were planted into the Borders, will require no farther Care but to keep them clear from Weeds, and other Plants; and if the Winter proves favourable, they will succeed very well; but for fear these should be destroyed, you should place those which were planted into Pots, under a common Hot-bed Frame in Winter, where they should be exposed to the open Air in mild Weather; but in frosty Weather they should be covered to preserve them. The following Summer, these Plants will produce Flowers and Seeds, but the Plants may be preserved three or four Years, provided they are sheltered in Winter.

The second and third Sorts grow wild in most Parts of *England*, and are seldom preserved, except in Botanic Gardens, for the sake of Variety; these grow under Hedges, and in shady Woods, where they spread and increase by their creeping Roots.

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The second Sort is sometimes used in Medicine.

These Plants being esteemed as Weeds, they are neglected by most Persons; though, if they are planted under Trees in large Wilderness Quarters, they will thrive, and make a pretty Appearance when they are in Flower. The Roots of these Plants may be taken up at *Michaelmas*, from the Woods and Places of their Growth, and transplanted into the Wilderness, allowing them a large Share of Room, because they spread very far by their creeping Roots; so that they should be planted in large Tufts at a great Distance from each other; and in the Spring they will rise about two Feet high, and produce their Flowers in great Plenty, when they will afford an agreeable Variety, in such Places where few other Plants will thrive; so that by introducing some of these common Plants into Gardens, there may be a great Variety produced in Wildernesses, where the Ground is often bare, and doth not produce any kind of Plants, which afford no pleasing Prospect to Persons who walk through the shady Paths of these Quarters; for it is much better to see any of the most common Weeds covering the Surface of the Ground amongst the Trees, than to have it quite bare. But these Plants afford an agreeable Prospect when they are in Flower, and require very little Culture.

The fourth Sort was discovered in *Italy*, by Seignior *Micheli*, Professor of Botany to the late Duke of *Tuscany*, who sent the Seeds into *England*; this is full as hardy as either of the former Sorts, and may be propagated in the same manner.

GARIDELLA. *This Plant was so named by Dr. Tournefort, in Honour to Dr. Garidel, who was Professor of Physic at Aix in Provence.*

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The Characters are;

It hath a rose-shaped Flower, consisting of several horned Petals, which are bifid, and ranged in a circular Order; from whose many-leav'd Cup rises the Pointal, which afterward becomes a Head composed of many oblong Pods, which open length-ways, and are full of roundish Seeds.

We know but one Sort of this Plant, viz.

GARIDELLA foliis tenuissime divisis. Tourn. Garidella with very narrow-divided Leaves.

This Plant is very near a-kin to the Nigella, or Fenel-flower; to which Genus it was placed by the Writers of Botany before Doctor Tournefort, and was by him separated from it, as differing in the Form of the Flower.

It grows wild in Candy, and on Mount Baldus in Italy, as also in Provence, where it was discovered by Dr. Garidel, who sent the Seeds to Dr. Tournefort, for the Royal Garden at Paris.

This is an annual Plant, whose Seeds should be sown in the Spring on a Bed or Border of light fresh Earth, where the Plants are designed to remain (for they seldom thrive if they are transplanted). When the Plants are come up, they must be carefully cleared from Weeds; and where they are too close, they must be thinned, leaving them about four or five Inches apart; and as they grow up, they must constantly be kept clear from Weeds, which, if suffered to grow amongst the Plants, will soon over-bear and destroy them. In June these Plants will produce their Flowers, and in August the Seeds will ripen; which if permitted to fall, will come up in Autumn, and require no other Culture, but to keep them clear from Weeds.

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GENERATION.

To this Article must be added;

Some Persons have objected to the Theory of the Generation, as laid down in the former Volumes of the *Gardeners Dictionary*, because they have observed some Female Plants produce Fruit, without having been impregnated by the Male.

It is certain, that the Female Plants may produce Fruit, without the Impregnation of the Male; but it is not certain, that this Fruit or Seed will, if sown, produce another Plant. What has been so often related by Travellers and Historians, of the Necessity of the Male Palm-tree being near the Female, in order to render it fruitful, hath been fully refuted by Father Labat, in his Account of *Africa*, where he has treated of the several Sorts of Palms: he says, That he observed in *Martinico* a large Palm-tree, which grew by the Side of a Convent, which produced Fruit in Plenty, though there was no other Palm-tree growing within two Leagues of this; but he also observed, that none of these Fruit would grow, though they had many Trials of them; so that they were obliged to procure some Fruit from *Barbary*, in order to propagate these Trees. He likewise adds, That the Fruit which grew on this Female Tree, never ripened so perfectly, nor was so well tasted, as those which came from Trees which had stood near some of the Male. Therefore we may conclude, that the Fruit or Seed may be produced by the Female Plants of most Kinds, without the Assistance of the Male Sperm, which may appear to Sight perfect, and fit to produce other Plants; but if we examine the Seeds, we shall find that most of them have not the Germ, or little Plant.

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Plant inclosed, nor will grow, if they are sown.

From a repeated Number of Experiments, in separating the Male from the Female Plants, I have always observed, that where it has been done in Time, and with proper Care, so as that there could have been none of the *Farina fecundans* of the Male Plant scattered on the Female; that though the Female Plants have produced sometimes fair Seeds to Appearance, yet, when they have been carefully sown, there has not been one Plant produced from them, except in one Experiment, which I repeated two Years on a Female Briony Plant, which grew singly, having no other Plant of the same Kind near it, yet did perfect Seeds, which grew very well the following Season. This Experiment requires a farther Repetition, before any thing can be ascertained in relation to the Theory of Generation, there having been so many Experiments made on a great Variety of Plants, which have proved the Necessity of the *Farina fecundans* impregnating the Female Plants to render them fruitful.

GENISTA, Broom.

To this Article must be added ;

1. GENISTA *Hispanica pumila odoratissima*. Tourn. Most sweet-scented low Spanish Broom.
2. GENISTA *Lusitanica, parvo flore luteo*. Tourn. Portugal Broom, with a small yellow Flower.
3. GENISTA *tinctoria Germanica, foliis angustioribus*. C. B. P. German Dyers-weed, or Wood-waxen, with narrow Leaves.
4. GENISTA *tinctoria frutescens, foliis incanis*. C. B. P. Shrubby Dyers-weed, with hoary Leaves.
5. GENISTA *tinctoria Lusitanica maxima*, PIURNA LUSITANORUM. Tourn. Great Portugal Dyers-weed,

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called Piurna by the Portuguese.

6. GENISTA *tinctoria latifolia Lucensis*. Tourn. Broad-leav'd Dyers-weed of Luca.

7. GENISTA *humilior Pannonica*. Tourn. Lower Broom of Pannonia.

8. GENISTA *ramosa, foliis hyperici*. C. B. P. Branching Broom, with St. John-wort-leaves.

9. GENISTA *Africana frutescens, rusci nervosis foliis*. Oldenl. Shrubby African Broom, with ribbed Butchers-broom-leaves.

10. GENISTA *Africana frutescens, rusci angustis foliis*. Oldenl. Shrubby African Broom, with narrow Butchers-broom-leaves.

11. GENISTA *Africana arborescens, argenteâ lanugine pubescens*. Oldenl. Tree-like African Broom, covered with a silvery Down.

12. GENISTA *Africana frutescens spicata purpurea, foliis angustissimis*. Oldenl. Purple spiked shrubby African Broom, with very narrow Leaves.

13. GENISTA *Africana frutescens spicata, laricis foliis*. Oldenl. Spiked shrubby African Broom, with Larch-tree-leaves.

14. GENISTA *Africana frutescens capitata, laricis foliis*. Oldenl. Headed African shrubby Broom, with Larch-tree-leaves.

15. GENISTA *Africana frutescens, capitulis lanuginosis, laricis brevissimo folio*. Oldenl. Shrubby African Broom, with woolly Heads, and a very short Larch-tree-leaf.

16. GENISTA *Africana frutescens, laricis incanis foliis*. Oldenl. Shrubby African Broom, with hoary Larch-tree-leaves.

The first Sort here mentioned is not very common in the English Gardens; this is of much lower Growth, than the common Spanish Broom, and the Flowers have a more agreeable Scent; but being equally hardy with the common Sort, may

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be easily propagated in *England*, and will be a very ornamental Shrub, to plant in Front of the *Spanish Broom*; which will fill up the Bottom, and hide the naked Stems of those Plants; therefore are very proper to form Clumps of these Trees, which will have an agreeable Effect, when properly placed in Gardens.

The second Sort is also uncommon at present in *England*, but the Seeds may be easily procured from *Portugal*. This Sort hath small Flowers, which have little Scent, and is not so valuable as the former Sort, nor is it quite so hardy. This will live in the open Air in moderate Winters, but in very hard Frost they will be in Danger of being destroyed, where they are not sheltered; so that some of these Plants should be kept in Pots, that they may be removed into the Green-house in Winter, to preserve the Kind.

The third Sort grows wild in *Germany*, as also in *France* and *Flanders*, but is not very common in *England*. This Sort is of humble Growth, seldom rising above two Feet high; but will make a fine Appearance when it is in Flower, and merit a Place in every good Garden, where, if the Plants are disposed in Clumps, in the middle whereof the common *Spanish Broom* must be planted, and round that the first Sort here mentioned, with these round the Outside, the whole Clump will appear like one great Bush of yellow Flowers; for as they all produce their Flowers at the same Season, which continue a considerable time, they make an agreeable Variety in large Gardens, and require very little Care, excepting to clear them from large overbearing Weeds, after they have taken Root.

The fourth and fifth Sorts rise to a greater Height than either of

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the former, but are somewhat tenderer, being Natives of warmer Countries; wherefore some should be kept in Pots, that they may be removed into Shelter in Winter; for though they will endure the Cold of our ordinary Winters in the open Air, if planted in a warm Situation, yet they are often destroyed in very hard Frosts; so that where some of them are not protected, the Sorts may be lost.

The sixth and seventh Sorts seldom rise above two Feet high, and are proper to mix with the third, to form Clumps, &c. These are somewhat tender while young, wherefore they should be kept in Pots, and sheltered for a Year or two; but afterward they will live in the open Air very well, provided they are planted in a warm Situation.

The eighth Sort is a low spreading Plant, seldom rising to the Height of two Feet, but spreads its Branches pretty far on every Side. The Flowers of this Kind are small, and being produced thinly at the Extremity of the Branches, it does not make so good an Appearance as either of the former Sorts. This is very hardy, and will endure the Cold of our Climate extremely well.

All these Sorts are propagated by Seeds, which should be sown on a Bed of light Earth, in an open Situation, toward the End of *March*; for if they are sown too early, and the Spring should prove cold or wet, the Seeds generally perish in the Ground. When the Plants begin to appear, they should be carefully weeded, and in very dry Weather they should be gently refreshed with Water, which will very much promote their Growth: during the Summer Season, they must be constantly kept clear from Weeds, which is the only Culture they will require.

In this Bed the Plants may remain until the following Spring, when they should be transplanted just before they begin to shoot; so that you should prepare a Spot of fresh Ground, which should be carefully dug and cleansed from the Roots of bad Weeds; then you must take up the Plants with great Care, for they generally shoot long Roots pretty deep in the Ground; which, if they are too much torn, will endanger the Plants. These must not lie long out of the Ground; for at this Season their Roots will dry very soon; therefore they should be immediately planted, and the Surface of the Ground must be covered with Mulch, to prevent the Sun and Wind from entering the Ground, and drying the Roots of the Plants; then they should be well watered, and if the Spring should prove dry, it will be proper to repeat the Waterings two or three times in a Week, until the Plants are well rooted. The Distance which should be allowed to these Plants, for those of the larger Growth, is three Feet Row from Row, and eighteen Inches asunder in the Rows; but for those of small Growth, two Feet Distance Row from Row, and one Foot asunder in the Rows, will be sufficient. In this Nursery the Plants may remain two Years; during which time they should be constantly kept clear from Weeds, and the Ground between them must be carefully dug every Spring, to prevent their Roots from running out too far; for as they send forth long slender Tap-roots, so, if these are not cut to force out Fibres near the Stem of the Plants, they will be in Danger of suffering when they are transplanted; for which Reason they should not remain in the Nursery longer than two Years, be-

cause these Plants cannot be removed, when they are older, with any Safety. The best Season to transplant these Plants, is toward the End of *March*, or in the Beginning of *April*, just before they begin to shoot; when they must be carefully taken up, as was before directed, and planted again immediately, covering the Surface of the Ground with Mulch, and observing to water them in dry Weather, until they have taken Root again; after which time they will require no farther Care, but to keep them clear from great over-bearing Weeds, which, if permitted to grow amongst them, would greatly weaken, if not absolutely destroy them. These Plants most of them flower in *June*, *July* and *August*, and their Seeds ripen in *September*.

The ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth and sixteenth Sorts, are Natives of the Country about the *Cape of Good Hope*, and are tenderer than either of the former Sorts; these are preserved in Pots, and removed into the Green-house in Winter; for they cannot endure the Cold of our Winters in the open Air: but they should have a great Share of fresh Air in mild Weather; and if they are placed in an airy Glass-case, amongst Ficoides, and other hardy Exotic Plants, which require a large Share of Air in Winter, as also as much Sun as possible; they will thrive better than when they are placed amongst Orange-trees in a common Green-house, and will flower much better. In Summer these Plants must be placed abroad in a warm Situation, where they may be defended from strong Winds; and in dry Weather they must be frequently watered, which will encourage them to flower freely, and cause them to produce good Seeds;

for want of which Care the Flowers often fall off, and are not succeeded by Pods.

These Plants are propagated by Seeds, which should be sown early in the Spring, in Pots filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark; and when the Plants begin to appear, they must be kept clear from Weeds, and frequently refreshed with Water: the Glasses of the Hot-bed must also be raised every Day, to admit fresh Air to the Plants, otherwise they will draw up very weak; for as these Plants are not very tender, they must be inured to bear the open Air as soon as the Season proves favourable; toward the latter End of May, the Pots should be removed out of the Hot-bed, and placed for a little time in a Glass-case, where they may have a greater Share of Air; and the middle of June, they should be placed in the open Air in a sheltered Situation, where they may remain till October; when they must be removed into the Glass-case again, where they should be placed on Shelves, to enjoy the Advantage of Air and Sun; and during the Winter they must be frequently refreshed with Water, but it should be given in small Quantities at this Season, especially while the Plants are young. The following Spring, these Plants should be shaken out of the Pots, and carefully parted, planting each of them into a separate small Pot filled with light fresh Earth, and plunged into a very moderate Hot-bed, which will facilitate their taking Root; but the Glasses of the Hot-bed should be covered with Mats every Day, to screen the Plants from the Sun, until they are rooted; after which time they should have a large Share of fresh Air, and must be frequently

watered. In May they must be inured to bear the open Air by Degrees, into which they should be removed the Beginning of June, and placed in a warm Situation. With this Management these Plants will thrive very well, and in two Years after will begin to produce their Flowers, when they will make an agreeable Diversity amongst other Exotic Plants.

GESNERA.

This Plant was so named by Father Plumier, who discovered it in America, in Honour to Conrad Gesner, a very learned Botanist, and Natural Historian.

The Characters are;

It hath an anomalous personated Flower, consisting of one Leaf, from whose Cup arises the Pointal, fixed like a Nail in the hinder Part of the Flower; which afterward becomes a membranaceous Fruit, divided into two Cells, which are filled with small Seeds.

The Species are;

1. *GESNERA humilis, flore flavescente. Plum. Nov. Gen.* Low Gesnera, with a yellowish Flower.

2. *GESNERA amplo digitalis folio tomentoso. Plum. Nov. Gen.* Gesnera with a large woolly Fox-glove-leaf.

3. *GESNERA arborescens, amplo flore fimbriato & maculoso. Plum. Nov. Gen.* Tree-like Gesnera, with a large furbelowed and spotted Flower.

The first and second Sorts were found by the late Doctor William Houstoun in Jamaica, from whence he sent their Seeds to England; but by their being a long time out of the Ground, there were not any of them which grew. The third Sort was discovered by Father Plumier at Martinico; this Sort rises to the Height of eight or ten Feet, and has

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has a woody Stem; but the other two Sorts seldom rise above three Feet high.

These Plants are propagated by Seeds, which should be sown as soon as possible after they are ripe; for being very small and light, if they are kept long out of the Ground, they will not grow: therefore the surest Method to obtain these Plants, is to procure them in Tubs of Earth from *America*. The Seeds should be sown in the Tubs filled with fresh Earth, and placed in a shady Situation; and when the Plants come up, they must be frequently watered, and kept clear from Weeds. These Tubs should remain in the Country, until the Plants are pretty strong; for if they are sent over too young, they will be in great Danger of perishing before they arrive in *England*. When they are put on board the Ship, they should be covered in the Heat of the Day with Tarpaulins, to screen them from the violent Heat of the Sun, as also in bad Weather to prevent the Salt-water from washing of them. During their Passage they should be often refreshed with Water, while they are in a warm Latitude; and should have as much Air as possible, when the Weather will permit; but as they arrive in a cooler Latitude, they must have a less Quantity of Water given to them, and should be screened from the Cold.

When these Plants arrive in *England*, they should be carefully taken out of the Boxes, and each planted into a Pot, filled with rich light Earth, and then plunged into a Hot-bed of Tanners Bark, observing to water them, and screen them from the Heat of the Sun until they have taken Root; after which time they should have fresh Air admitted to them in proportion to the Warmth

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of the Season, and must be frequently watered. In this Bed the Plants may remain until *Michaelmas*, when they should be removed into the Stove, and plunged into the Tan: during the Winter Season they will require to be frequently watered, but it must not be given in large Quantities; but in Summer they must be plentifully watered in hot Weather. As these Plants are too tender to endure the Cold of our Air even in Summer, they must constantly remain in the Stove, where in Winter they must be kept very warm; but in Summer they must have a large Share of fresh Air in warm Weather; and if their Leaves contract Filth, it must be carefully washed off; otherwise it will harbour Insects, which will in time destroy the Plants. With this Management the Plants will thrive, and produce Flowers, which will afford an agreeable Variety amongst other tender Exotic Plants in the Stove.

GEUM, Sanicle.

To this Article must be added;

1. GEUM *rotundifolium minus*, Tourn. Lesser round-leaved Sanicle.

2. GEUM *folio circinato, pistillo floris pallido*. Tourn. Round-leaved Sanicle, with a pale Pointal.

3. GEUM *folio subrotundo minori, pistillo floris rubro*. Tourn. Sanicle with a lesser roundish Leaf, and a red Pointal.

4. GEUM *folio circinato, acutè crenato, pistillo floris rubro*. Tourn. Sanicle with a round sharp jagged Leaf, and a red Pointal.

5. GEUM *folio subrotundo minimo*. Tourn. Sanicle with a very small roundish Leaf.

6. GEUM *Creticum, folio circinato villosò, flore magno albo*. Tourn. Cor. Candy Sanicle, with a round hairy Leaf, and a large white Flower.

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7. *GEUM orientale rotundifolium supinum, flore aureo.* Tourn. Cor. Low round-leav'd Eastern Sanicle, with a golden Flower.

8. *GEUM orientale, cymbalariae folio molli & glabro, flore magno albo.* Tourn. Cor. Eastern Sanicle, with a soft smooth Ivy-wort-leaf, and a large white Flower.

The five first-mentioned Sorts grow on the *Alps* and *Appennines* in Plenty, from whence they have been transplanted into some curious Gardens by Lovers of Variety: they are all extreme hardy Plants, so should be planted in shady moist Places, and a poor Soil, where they will thrive much better than in an open Situation. They are propagated by Off-sets, which they send forth in great Plenty; the best Season for this Work is in *October*, that the Plants may be well rooted before Spring, otherwise they will not flower so strong the following Summer. Some of these Plants were formerly planted for Edgings on the Sides of Borders in the Flower-garden, but they are by no means fit for this Purpose; because they ramble too far, and are very subject to decay in Patches, which breaks the Edging, and renders it unsightly; so that they appear more beautiful, when planted in Patches on shady moist Borders, where few other Plants will thrive; in such Places these Plants will make a pretty Variety. They flower in *May*, and some of them will produce good Seeds in Autumn; but as they increase so fast by Off-sets, few Persons regard their Seeds.

The other three Sorts were discovered by Dr. *Tournefort* in the *Lewant*, who sent them to the Royal Garden at *Paris*. These are not quite so hardy as the former Sorts, but will endure the Cold of our ordinary Winters very well in the full

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Ground, being never destroyed but by extreme hard Frost. These may be propagated by Off-sets, in the same manner as the former Sorts, and should have a shady Situation.

GLADIOLUS, Corn-flag.

To this Article must be added;

1. *GLADIOLUS floribus uno versu dispositis, major & procerior, flore candicante.* C. B. P. Greater and taller Corn-flag, with whitish Flowers ranged all on one Side.

2. *GLADIOLUS floribus uno versu dispositis, minor & humilior.* C. B. P. Smaller and lower Corn-flag, with Flowers ranged on one Side.

3. *GLADIOLUS minor, floribus uno versu dispositis incarnatis.* H. L. Smaller Corn-flag, with flesh-coloured Flowers ranged on one Side.

4. *GLADIOLUS utrinque floridus, flore rubro.* C. B. P. Corn-flag with red Flowers on both Sides.

5. *GLADIOLUS floribus uno versu dispositis, minor.* C. B. P. Smaller Corn-flag, with Flowers ranged on one Side.

All these Sorts of Corn-flag are as hardy as those mentioned in the former Volumes of the *Gardeners Dictionary*; and may be propagated by either Off-sets or Seeds, in the same manner as is there directed; wherefore I shall not repeat it again in this Place.

GLAUCIUM, Horned Poppy.

To this Article must be added;

GLAUCIUM orientale, flore magno rubro. Tourn. Cor. Eastern Horned Poppy, with a large red Flower.

This Sort was found by Dr. *Tournefort* in the *Lewant*, who sent the Seeds to *Paris*. It is a biennial Plant, which may be propagated by Seeds, as the other Sorts; but should have a light poor Soil, in which it will endure the Cold of the Winter much better than if sown on a rich Ground.

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GLAUX, Sea Milk-wort.

The Characters are;

It hath a bell-shaped Flower, consisting of one Leaf, whose Brims are expanded and cut into several Segments; from the Centre arises the Pointal, which afterward becomes a round Fruit or Husk, opening from the Top downwards, and filled with small Seeds.

The Species are;

1. GLAUX *maritima*. C. B. P. Sea Milk-wort, or black Salt-wort.

2. GLAUX *maritima*, flore albo. Tourn. Sea Milk-wort, with a white Flower.

3. GLAUX *palustris*, flore striato clauso, foliis portulacæ. Tourn. Marsh Milk-wort, with a striped Flower, and purslane Leaves.

These Plants grow wild in England, and are rarely preserved in Gardens, unless for the sake of Variety. They may be taken up in the Places of their Growth, and planted in Pots, filled with poor gravelly Earth, and in Summer must be frequently watered. With this Management they may be preserved, and they will produce Flowers every Year.

GLOBULARIA.

The Characters are;

It hath a flosculous Flower, consisting of many Florets, which are divided into several Segments, and have one Lip; these are contained in a proper Empalement, out of the Bottom of which arises the Pointal, fixed like a Nail to the lower Part of the Floret, and becoming a Seed, hidden in the Capsule, which before was the Empalement of the Floret. On that Capsule sit the Placenta's, which occupy the middle Part of the common Empalement.

The Species are;

1. GLOBULARIA *vulgaris*. Tourn. Common Globularia,

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2. GLOBULARIA *Pyrenaica*, folio oblongo, caule nudo. Tourn. Pyrenean Globularia, with an oblong Leaf, and naked Stalk.

3. GLOBULARIA *montana humillima repens*. Tourn. The lowest creeping Mountain Globularia.

4. GLOBULARIA *fruticosa*, myrti folio tridentato. Tourn. Shrubby Globularia, with a trifid myrtle Leaf.

5. GLOBULARIA *Africana frutescens*, thymelææ folio lanuginoso. Tourn. Shrubby African Globularia, with a woolly spurge-laurel Leaf.

6. GLOBULARIA *spinosa*. Tourn. Prickly Globularia.

7. GLOBULARIA *Alpina minima*, origani folio. Tourn. The smallest Alpine Globularia, with a Wild-marjoram-leaf.

8. GLOBULARIA *orientalis*, floribus per caulem sparsis. Tourn. Cor. Eastern Globularia, with Flowers scattered along the Stalks.

9. GLOBULARIA *orientalis*, flore amplissimo. Tourn. Cor. Eastern Globularia, with a very large Flower.

The first of these Plants grows plentifully about Montpelier, as also at the Foot of the Mountains Jura and Saleva, and in many other Parts of Italy, and in Germany. This Plant hath Leaves very like those of the Daizy, but are thicker and smoother; the Flowers grow on Foot-stalks, which are about six Inches high, and are of a globular Form.

The second Sort grows plentifully in the Woods, and on the Pyrenean Mountains; this is much larger than the former, and the Foot-stalk is quite naked; the Leaves are narrower, and much longer.

The third Sort is a very low Plant, whose Branches trail on the Ground,

Ground, and strike Roots out from their Joins, whereby it propagates itself very fast. The Flowers grow on short Foot-stalks, and are of a blue Colour.

The first and second Sorts may be propagated by parting of their Roots, after the manner of Daizies ; but the third Sort is easily propagated from the trailing Branches, which take Root. The best Season for parting and transplanting of these Plants, is in *September*, that they may take new Root before the frosty Weather comes on : They should be planted in Pots, filled with fresh Earth, and placed in a shady Situation until they have taken Root ; after which time they may be exposed to the open Air until the Beginning of *November*, when it will be proper to place them under a Garden-frame, where they may be protected from severe Frost, which sometimes destroys them in this Climate ; but they should have as much free Air as possible in mild Weather. In the Summer Season they should be placed where they may have the Morning Sun, and in dry Weather should be frequently refreshed with Water. With this Management they will increase, and produce their Flowers every Year, but they rarely perfect their Seeds in this Country.

The fourth Sort grows about *Montpelier* in *France*, and in *Valentia*, and several other Parts of *Spain*. This has a hard woody Stem, and rises to about two Feet high, having many woody Branches, beset with Leaves like those of the Myrtle-tree ; on the Top of the Branches the Flowers are produced, which are of a blue Colour, and globe-shaped. This Plant may be propagated by Cuttings, which should be cut off in *April*, just before they begin to make new Shoots ; these Cuttings should

be planted into Pots, filled with light fresh Earth, and then placed into a very moderate Hot-bed, observing to water and shade them until they have taken Root ; when they may be taken out of the Bed, and inured to bear the open Air by degrees. In Summer these Plants may be exposed with other hardy Exotic Plants ; and in Winter they should be placed under a Hot-bed Frame, where they may enjoy the free Air in mild Weather ; but should be screened from hard Frost, which will destroy them, if they are exposed thereto. This Plant never produces good Seeds in this Country.

The fifth Sort grows in the Country about the Cape of *Good Hope* ; this is a Shrub which rises to the Height of seven or eight Feet, and divides into many Branches, which are closely beset with thick stiff Leaves, much like those of the *Cneorum Matthioli* ; at the Division of the Branches, the Flowers are produced, which are round, woolly, and of a silver Colour, and at first have the Appearance of the Katkin of the Mountain Osier. This Shrub may be propagated by Cuttings, which should be planted in *April*, just as the Plant begins to shoot, in Pots filled with fresh light Earth, and plunged into a very moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root ; after which time you must inure them by Degrees to bear the open Air ; then they must be taken out of the Hot-bed, and may be placed amongst other Exotics in a well sheltered Situation, observing to water them in dry Weather ; in this Place they may remain till *October*, when they should be removed into the Green-house, and placed where they may have as much free Air as possible in mild Weather ;

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Weather; for this Plant only requires to be screened from Frost, being tolerably hardy. With this Management the Plants will thrive exceedingly, and in a few Years will produce Flowers.

The sixth Sort was found in the Mountains of *Granada*, by D. *Albinus*. This Plant is of low Growth, and may be propagated as the first Sort, as may also the seventh Sort, which is the least of all the Sorts, and the most hardy; so that it should have a shady Situation in Summer, but in Winter it will be proper to shelter it from severe Frost.

The eighth and ninth Sorts were found by Dr. *Tournefort*, in the *Levant*; these are somewhat tender, and should be sheltered from the Frost in Winter; but in Summer they may be exposed with other hardy Exotic Plants, and require to be frequently watered in dry Weather. These may be propagated by Seeds, or by parting of their Roots, as was directed for the former Sorts.

GLYCYRRHIZA, Liquorice,

To this Article must be added;

GLYCYRRHIZA *orientalis*, *siliquis hirsutissimis*. *Tourn. Cor.* Eastern Liquorice, with hairy Pods.

The first Sort mentioned in the former Volumes of the *Gardeners Dictionary*, is that which is commonly cultivated in *England* for Medicine; the other two Kinds are preserved in curious Botanic Gardens for Variety; but their Roots are not so full of Juice as the first, nor is the Juice so sweet: tho' the second Sort seems to be that which *Dioscorides* has described and recommended; but I suppose the Goodness of the first has occasioned its being so generally cultivated in *Europe*.

These two Sorts last-mentioned

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perfect their Seeds in *England*, by which they may be propagated, whereas the common Sorts seldom produce any in this Country. They may also be propagated by Roots, as the common Sort, which is directed in the former Volumes; therefore I shall not repeat it in this.

GNAPHALODES.

The Characters are;

It is a Plant with a flosculous Flower, consisting of several barren Florets; the Embryos which constituted the Empalement of the Flower, become a crested Fruit, pregnant with a Seed for the most part oblong.

We have but one Species of this Plant at present in *England*, which is;

GNAPHALODES *Lusitanica*. *Tourn.* Portugal Gnaphalodes.

This is a low annual Plant, which seldom rises above four Inches high, but divides into several trailing Branches, which are beset with small silver-coloured Leaves, which have a great Resemblance to those of Cudweed; but the Flowers are so small as not to be conspicuous, unless they are magnified by a Glass. This Plant is seldom preserved in Gardens, unless it be for the sake of Variety; for there is little Beauty in it. The Seeds of this Plant may be sown the Beginning of *April*, on a Bed of light Earth, in an open Situation; and when the Plants are come up, they should be kept clean from Weeds, and in very dry Weather they should be sometimes refreshed with Water. With this Management the Plants will flower in *July*, and in *August* the Seeds will ripen, when the Plants will soon after decay.

GRAFTING.

To this Article add;

Of late Years some Persons have made use of another Composition for Grafting,

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Grafting, which they have found to answer the Intention of keeping out the Air, better than the Clay prescribed in the former Volumes of the *Gardeners Dictionary*. This is composed of Turpentine, Bees-wax and Rosin melted together; this, when of a proper Consistence, may be put on the Stock round the Graft, in the same manner as the Clay is usually applied; and tho' it be not above a quarter of an Inch thick, yet will keep out the Air more effectually than the Clay; and as Cold will harden this, there is no Danger of its being hurt by Frost, which is very apt to cause the Clay to cleave, and sometimes fall off; and when the Heat of Summer comes on, this Mixture will melt and fall off without any Trouble. In using of this there should be a Tin or Copper-pot with Conveniency under it to keep a very gentle Fire with Small-coal, otherwise the Cold will soon condense the Mixture; but you must be careful not to apply it too hot, lest you injure the Graft. A Person who is a little accustomed to this Composition, will apply it very fast, and it is much easier for him than Clay, especially if the Season is cold.

GRAMEN, Grass.

In the former Volumes of the *Gardeners Dictionary*, I have only mentioned in general the manner of making and keeping Grass in Gardens for Pleasure, and have not there enumerated the *Species* of Grass; therefore in this Volume I shall set down those Sorts which are sowed for Pasture, and are useful to improve Land; as also those which are troublesome Weeds, and such likewise as are useful in Medicine, &c.

1. GRAMEN *loliaceum, angustiore folio* & *spica*. C. B.

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P. Red Darnel Grass, or Rey Grass.

2. GRAMEN *pratense minus, seu vulgatissimum*. Raii Syn. The most common meadow Grass.

3. GRAMEN *pratense paniculatum medium*. Raii Syn. The middle Sort of meadow Grass.

4. GRAMEN *pratense paniculatum majus, latiore folio*. C. B. P. The greatest meadow Grass.

5. GRAMEN *secalinum*. Ger. Emac. Tall meadow Rie Grass.

6. GRAMEN *secalinum, & secale sylvestre*. Ger. Emac. Wild Rie, or Rie Grass.

7. GRAMEN *secalinum majus sylvaticum*. Hist. Oxon. Great Wood Rie Grass.

8. GRAMEN *panicum, spica simpliciter laevi*. Raii Syn. Panic Grass, with a single smooth Ear.

9. GRAMEN *panicum, spica divisa*. C. B. P. Panic Grass, with a divided Spike.

10. GRAMEN *panicum, spica aspera*. C. B. P. Rough-eared Panic Grass.

11. GRAMEN *loliaceum, spica longiore*. C. B. P. Darnel.

12. GRAMEN *avenaceum duntorum spicatum*. Raii Syn. Spiked Hedge oat Grass.

13. GRAMEN *avenaceum pratense*. Park. Meadow oaten Grass.

14. GRAMEN *avenaceum supinum arvense*. Park. Low meadow oaten Grass.

15. GRAMEN *miliaceum vulgare*. Park. Common Millet Grass.

16. GRAMEN *spicatum, semine miliaceo albo*. Tourn. Common Canary Grass.

17. GRAMEN *spicatum, semine miliaceo nigro*. Tourn. Black Canary Grass.

18. GRAMEN *spicatum, semine miliaceo minore nigro*. Tourn. Lesser black Canary Seed.

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19. GRAMEN *spicatum*, *semine miliaceo griseo*. Tourn. Grey Canary Seed.

20. GRAMEN *paniculatum*, *locustis maximis candicantibus tremulis*. Tourn. The greatest Quaking Grass, with white Panicles.

21. GRAMEN *paniculatum*, *locustis maximis phœniceis tremulis*. Tourn. The greatest Quaking Grass, with scarlet Panicles.

22. GRAMEN *tremulum medium*. Park. The middle Quaking Grass.

23. GRAMEN *tremulum minus*, *panícula parva*. Park. Smaller Quaking Grass, with a small Panicle.

24. GRAMEN *murorum spica longissima*. Ger. Emac. Capons-tail Grass.

25. GRAMEN *dactylon*, *latiore folio*. C. B. P. Broad-leav'd Cocks-foot Grass.

26. GRAMEN *dactylodes*, *radice repente*. Ger. Emac. Creeping Cocks-foot Grass.

27. GRAMEN *typhinum majus seu primum*. Ger. Emac. Greatest Cats-tail Grass.

28. GRAMEN *typhinum minus*. Ger. Lesser Cats-tail Grass.

29. GRAMEN *cristatum*. J. B. Smooth crested Grass.

30. GRAMEN *spica triticea*, *repens vulgare*, *caninum dictum*. Raii Syn. Common Dogs Grass, or Quick Grass, or Couch Grass.

31. GRAMEN *alopecuroides majus*. Ger. Emac. Common Fox-tail Grass.

32. GRAMEN *alopecuroides minus*. Park. Smaller Fox-tail Grass.

33. GRAMEN *spicatum*, *durioribus & crassioribus locustis*, *spica brevi*. Tourn. French Haver Grass.

34. GRAMEN *spicatum*, *durioribus & crassioribus locustis*, *spica longissima*. Tourn. French Haver Grass, with a long Spike.

35. GRAMEN *paniculatum*, *spicis*

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crassioribus & brevioribus, *variegatum*. Tourn. Striped Grass.

The fourteen first-mentioned Sorts grow pretty common in the Pastures in most Parts of England, and are often intermixed in the same Pasture; so that it is very rare to meet with a Pasture, which hath not ten or twelve Sorts of Grass in it; but the Sort which is generally sown about London, is the Rey Grass, which is very hardy, and will grow on cold four Land better than most other Sorts; but as it seldom happens that the Seed is saved intire, without a Mixture of other Grass Seeds, it is very rare to meet with a Pasture, which has not many Sorts in it.

The best Season for sowing of Grass Seed, is the latter End of August, and the Beginning of September, that the Grass may be well rooted before the Frost sets in, which is apt to turn the Plants out of the Ground, when they are not well rooted. This Seed should be sown in moist Weather, or when there is a Prospect of Showers, which will soon bring the Grass up; for the Earth being at that Season warm, the Moisture will cause the Seeds to vegetate in a few Days.

The Land on which Grass-seed is intended to be sown, should be well ploughed and cleared from the Roots of noxious Weeds, such as Couch Grass, Fern, Rushes, Heath, Gorse, Broom, Rest-Harrow, &c. which if left in the Ground, will soon get the better of the Grass, and overrun the Land. Therefore in such Places where either of these Weeds abound, it will be a good Method to plough up the Surface in April, and let it lie some time to dry, then lay it in small Heaps, and burn it. The Ashes so produced, when spread on the Land, will be a good Manure for

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for it ; the Method of burning the Land is particularly directed under the Article *Land*, which see ; especially if it is a cold stiff Soil. But where Couch Grass, Fern or Rest-Harrow is in Plenty, whose Roots run far under Ground, the Land must be ploughed two or three times pretty deep in dry Weather, and the Roots carefully harrowed off after each ploughing ; which is the most sure Method to destroy them. Where the Land is very low, and of a stiff clayey Nature, which holds Water in Winter, it will be of singular Service to make some under-ground Drains, to carry off the Wet ; which if detained too long on the Ground, will render the Grass sour. The Method of making these Drains is prescribed under the Article *Land* ; which see.

Before the Seed is sown, the Surface of the Ground should be made level and fine, otherwise the Seed will be buried unequal. The Quantity of Grass-feed for an Acre of Land, is usually three Bushels ; when the Seed is sown, it must be gently harrowed in, and the Ground rolled with a wooden Roller ; which will make the Surface even, and prevent the Seeds being blown in Patches. When the Grass comes up, if there should be any bare Spots, where the Seed has not grown, they may be sown again, and the Ground rolled, which will fix the Seeds ; and the first kindly Showers will bring up the Grass, and make it very thick.

Some People mix Clover and Rey Grass Seeds together, allowing ten Pounds of Clover, and one Bushel of Rey Grass to an Acre : but this is only to be done where the Land is designed to remain but three or four Years in Pasture, because neither of these Kinds are of long Duration ;

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so that where the Land is designed to be laid down for many Years, it will be proper to sow the Grass-seeds by themselves, or to mix Trefoil or *Dutch* Clover amongst them.

The following Spring, if there should be any Thistles, Ragwort, or such other troublesome Weeds, come up among the Grass, they should be carefully cut up with a Spaddle before they grow large ; and this should be repeated two or three times in the Summer, which will effectually destroy them ; for if these Plants are suffered to ripen their Seeds, they will be blown all over the Ground, these having Down adhering to their Seeds which assists their Transportation ; so that they are often carried by the Wind to a great Distance, and thereby become very troublesome Weeds to the Grass. For want of this Care, how many Pastures may be seen almost over-run with these Weeds, (especially the Ragwort) when a small Expence, if applied in time, would have entirely extirpated them ! for a Man may go over several Acres of Land in one Day with a Spaddle, and cut up the Weeds just below the Surface of the Ground, turning their Roots upward ; which if done in dry Weather, they will soon decay ; but this must always be performed before the Plants come to have their Seeds formed, because, after that, many Sorts will live long enough to nourish their Seeds after they are cut, so as to ripen them ; when there will be a Supply of Weeds for some Years after, which cannot be extirpated without a much greater Expence.

The Panic Grasses are harsher than the common meadow Grasses ; therefore are rarely cultivated in *England* ; for the Cattle do not care to feed on them, where they have any other Fodder ; and as they are annual,

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annual, so, if they were equally good, they would not be worth cultivating; for those Plants which require an annual Culture, are too expensive to be worth the Farmer's Care.

The Canary Grasses are sown in some Parts of *England*; for their Seeds, which are used to feed Birds; the white Sort is generally preferred to the other, but the grey Sort is frequently intermixed with it. These Seeds should be sown the Beginning of *March*, on a moderate light Soil; for they do not thrive well on strong cold Land. The Surface of the Ground should be well stirred, and made even, before the Seeds are sown, that they may be equally buried. Three Bushels of this Seed are sufficient for an Acre of Land; when the Seed is sown, which should be done in dry Weather, the Ground must be gently harrowed to bury the Seeds, and then the Whole should be rolled with a wooden Roller; which will smooth the Surface of the Ground, and prevent the Seeds from being removed by strong Winds. When the Grass is come up, if there should be any rank Weeds amongst it, they must be cut up with a Spaddle, as was before directed; for if they are permitted to grow, they will do great Damage to the Grass. The latter End of *July*, or the Beginning of *August*, the Seeds will ripen, when it should be cut, and as soon as it is dry, should be threshed out, or stacked; for if it remains abroad, the Birds will devour it: if the Crop succeeds, there will be upward of four Quarters on an Acre of Land.

The four Sorts of Quaking Grass, are rather esteemed as Curiosities, than for any real Use; therefore are sometimes allowed a Place in Gardens: these produce light scaly Heads

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on slender Foot-stalks, which are moved by every Wind, after the manner of the Leaves of the Aspen-tree; from whence it had the Name of *Quaking Grass*, or in some Places *Corv-quakes*, or in other Places *Ladies-hair*. These Sorts are commonly in Head in *May*, which occasioned this old *English* Proverb; *May, come she early, come she late, makes the Corv-quake*. The middle Sort of Quaking Grass grows very common in several Parts of *England*. The smaller Sort grows wild in the Island of *Jersey*; but the greatest Sort is not a Native in *England*, but is only to be found in some curious Gardens, where it is preserved for the sake of Variety.

The Capons-tail Grass is found growing by the Path-sides, and on Mud-walls in several Parts of *England*, but is never cultivated for Use; this produces very long Spikes, which bend downward with the Weight of the Seed, when it is near ripe; it is sometimes preserved in Gardens for Variety.

The two Sorts of Cocksfoot-grass are found upon sandy Lands near the Sea in *Norfolk*, and the West of *England*; but are seldom cultivated, being coarse sorts of Grass, and never rise above six or eight Inches high, and are unfit for making Hay. The only Use of either of these Grasses is, for sowing on loose sandy Lands, which will not produce any other Sort of Grass; in which Places these will often thrive to Advantage; for as these spread close to the Surface of the Ground, so they preserve a Moisture in the Earth by the close Growth of their Branches; and these Sorts will endure much more Drought, than most other Sorts of Grass. Of this Kind of Grass, there are a great Number of Species in *America*, which are of great Use to the

the Inhabitants of the *Caribbee Islands*; for some of them will thrive in the greatest Drought, and afford useful Food for their Cattle, when most other Vegetables are burnt up. Some of these Sorts send forth Roots at every Joint, whereby they spread and propagate themselves to a great Distance.

The two Sorts of Cats-tail Grass are found plentifully by the Side of Paths, and in Corn-fields, in many Parts of *England*, as also in some Pastures; but they are not profitable Grasses to cultivate.

The Couch Grass is one of the most troublesome Weeds in Cornlands and Gardens, and is with great Difficulty extirpated; for the Roots of this Kind run very far under Ground, and every small Part of the Root will grow; so that if the Roots are torn into small Pieces, every one of them will propagate where-ever they are left in dry Ground. Where the Land is stocked with this Grass, it should be ploughed two or three times in dry Weather, during the Heat of Summer; and after each Ploughing, the Ground should be carefully harrowed, to draw the Roots out, which should be drawn into Heaps, and then carted off the Ground; for if the Roots are left, they will strike into the Ground after the first Shower of Rain, and soon become troublesome: such foul Land is very unfit to sow with Grain; therefore it will be proper to sow with Turneps, and Beans or Pease, which require hoeing two or three times, which if done in very dry Weather, will be of great Use to destroy the Couch Grass. Where this Method is not observed, it is common to see large Tracts of Land, which are sown with Grain, so much overrun with Grass, that many times the Crop doth not produce so

much Grain as was sown on the Ground.

In Gardens this Grass is much easier destroyed than in large Fields, because the Ground being frequently dug, Care may be taken to pick out the Roots in digging; and if there be any left, which appear afterward, the Roots may be easily forked out; so that in one Year it may be destroyed, if proper Care be taken. But where the Ground is very full of the Roots of Couch Grass, and the Land will admit of being trenched three Spits deep, that will be the most effectual Way of destroying it, and will be cheaper than picking out the Roots by Hand; for by trenching of the Ground so deep, the Couch will be buried near two Feet, which will rot it; and turning of the Ground so deep, will be moreover of great Service to it.

This Sort of Grass is what the *College of Physicians* ordered to be used in Medicine; so that whenever Grass is prescribed, this is what is meant.

The Fox-tail Grasses are frequently found in Pastures intermixed with other Kinds, but are never sown separately. These do very well for Fodder or Hay, and are useful Kinds of Grass.

The Bearded wild Oats, or Haver, are frequently found amongst Corn in several Parts of *England*, where sometimes they become troublesome Weeds; for if they are not drawn out of the Corn before it is ripe, it will be difficult to be separated from the Corn in the Barn: but as they are annual Plants, they may be easily destroyed with a little Care.

The striped Grass is preserved in many Gardens for the Beauty of its variegated Leaves, which continue fresh the greatest Part of the Year. This Sort is easily propagated by
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parting the Roots, either in Spring or Autumn; for every Off-set will increase to be a large Root in one Year's time. It will grow on any Soil, or in any Situation; therefore may be planted in any abject Part of the Garden, where it will thrive, and afford an agreeable Variety. This Sort is by many Persons called *Ribbon-grass*, from the Stripes of White and Green, which run the whole Length of the Blade, like the Stripes in some Ribbons.

For the farther Management of Grass, see *Pasture* and *Meadow*.

Clover Grass, *see* *Trifolium*.

Saint Foyn, *see* *Onobrychis*.

La Lucerne, *see* *Medica*.

Noneuch, *see* *Melilotus*.

Trefoil, *see* *Trifolium*.

Spurrey, *see* *Spergula*.

GRANADILLA.

To this Article must be added;

1. GRANADILLA *folio hastato, flore caeruleo majore*. *Hoult.* Passion-flower with a spear-pointed Leaf, and a large blue Flower.

2. GRANADILLA *folio oblongo serrato, flore purpureo*. *Hoult.* Passion-flower with an oblong serrated Leaf, and a purple Flower.

3. GRANADILLA *folio glabro, tricuspidi, & angusto, flore virescenti minimo*. *Tourn.* Passion-flower, with a narrow smooth three-pointed Leaf, and a small greenish Flower.

4. GRANADILLA, *quæ* COANE-NEPILLI, *seu* CONTRAYERVA *Hernand.* *Hoult.* Passion-flower, or Contrayerva of *Hernandez*.

The Seeds of these four Sorts of Passion-flowers were sent from *La Vera Cruz*, by the late Dr. *William Houstoun*; the first and second Sorts are new, and have not been mentioned by any Botanic Writer, before they were discovered by the Doctor. Since which time the second

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Sort has been figured and described by Mr. *John Martyn*, Professor of Botany at *Cambridge*, in his fourth Decade of rare Plants. These two Sorts produce very beautiful Flowers; and the second continues flowering near three Months, which renders it more valuable. The other two Sorts have little Beauty in their Flowers; and are only preserved by those who are curious in the Study of Botany. These Plants are tender, and require to be placed in a Bark-stove; where they will climb to a great Height, and produce great Plenty of Flowers. There is now an Espalier in a very large Stove in the *Physic-garden*, which is sixteen Feet high, and covered over with these Kinds of Passion-flowers, which has a fine Effect. But as the Plants will soon root through these Pots into the Bark-bed, so, if they are disturbed, it will greatly check their Growth; therefore they should be permitted to remain in the Bark: Or if, in the first making of the Stove, a Border be taken out of the Pit (on the Back-side next the Flues) about two Feet wide, which may be boarded up with strong Ship-plank, and this Border filled with Earth, into which these Plants may be planted; they may remain several Years undisturbed in these Borders, and will make a fine Appearance. The Reason of my advising this Border to be divided from the Bark-pit with Boards, rather than by a Brick-wall, is, that the Heat of the Bark may more easily warm the Borders, which will be of great Service to the Plants.

These four Sorts may be propagated from Seeds, which should be sown on a Bed in the Spring, and managed as hath been directed in the *Dictionary* for the eighth, ninth and tenth Sorts; to which the Reader

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der is referred, to avoid Repetition. They may be also propagated by laying down of the Branches; which will take Root in three or four Months; when they may be taken from the old Plants, and planted into Pots filled with rich Earth, and treated in the same manner as the seedling Plants. These Plants flower in June, July, and August, and sometimes produce ripe Fruit in England.

GUAIABARA, Sea-side Grape, *vulg.*

The Characters are ;

It hath a Flower consisting of six Leaves, which expand in form of a Rose ; in the Centre arises the Pointal, which afterward becomes a pulpy Fruit, inclosing one roundish Stone terminating in a Point.

The Species are ;

1. GUAIABARA *alia racemosa, foliis oblongis. Plum. Manuf.* Sea-side Grape with oblong Leaves.

2. GUAIABARA *alia racemosa, foliis latissimis. Houst.* Sea-side Grape with very broad Leaves

3. GUAIABARA *foliis minoribus & longioribus, fructu racemoso minimo atro-purpureo. Houst.* Sea-side Grape with smaller and longer Leaves, and the least dark-purple Fruit growing in Bunches.

The second Sort is very common in Jamaica, and all the Caribbee Islands, where it grows on the sandy Shores, from whence it had the Name of Sea-side Grapes, the Fruit growing in a long slender Bunch. This Fruit is commonly sold in the Markets in Barbadoes, where it is much esteemed.

The first Sort is common at Carthage in New Spain, from whence I received the Seeds, which were collected by the late Dr. William Houstoun.

The third Sort was also discovered

by the same Gentleman at La Vera Cruz, who sent the Seeds into England, from which several Plants were raised. These two Sorts also grow on the sandy Shores near the Sea.

These Shrubs for the most part grow about ten or twelve Feet high, and have several Trunks arising from the same Root, so that they appear like large Bushes. The Fruit comes out from the Wings of the Leaves in long slender Bunches, which are about the Size of an ordinary Raisin in the second Sort ; but the first and third Sorts produce very small Fruit, which are seldom gathered. The second Sort is figured in *Lobel's History of Plants* under the Title of *Populus Novi Orbis*.

All these Sorts are propagated by Seeds, which should be sown in small Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark : in about a Month after, the Plants will appear above Ground, when they must be frequently watered, and cleared from Weeds : if the Weather proves warm, the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants ; but if the Nights are cold, the Glasses must be covered with Mats every Night, to preserve a gentle Warmth in the Bed. When the Plants are about two Inches high, they must be shaken out of the Pots, and separated carefully, planting each into a small Pot filled with light rich Earth, and then plunged into the Hot-bed again, observing to screen them from the Sun every Day, until they have taken Root ; after which time they should have Air admitted to them every Day, in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed ; they must also be frequently watered in hot

hot Weather. When the Plants have filled the Pots with their Roots, they must be transplanted into larger Pots, and plunged again into the Hot-bed, where they may remain till *Michaelmas*; at which time they should be removed into the Stove, and plunged into the Tan. During the Winter Season, they must be kept very warm, and frequently refreshed with Water, tho' it must not be given to them in large Quantities; but in Summer, they should have fresh Air admitted to them in warm Weather, and watered more plentifully: but they must constantly remain in the Stove; for they are too tender to live in the open Air in this Country in the warmest Season. These Plants having thick, strong, green Leaves, make an agreeable Appearance in the Stoves; and it may be expected to see the Fruit brought to Perfection in some of the Stoves which have been lately erected.

GUANABANUS.

This is the *American* Name by which these Fruits are called, and by Father *Plumier* is made the generical Name; but as many of these Sorts are enumerated in the former Volumes of the *Gardeners Dictionary*, under the Title *Anona*, I shall only take Leave to add a few Sorts, which have been lately introduced into the *English* Gardens.

1. *GUANABANUS folio amplissimo, flore roseo, fructu purpureo squamato.* Cherimonias with a rose-coloured Flower, and a purple scaly Fruit.

2. *GUANABANUS latifolia, flore albo, fructu aureo squamato.* Cherimonias with a broad Leaf, a white Flower, and a golden scaly Fruit.

3. *GUANABANUS persee folio, flore intus albo, exterius virescente, fructu nigricante squamato, vulgo Cherimolia.* Feuill. Obs. Guanabanus with an Avocado-pear-leaf, and

Flowers which are white within, and greenish on the Outside, and a scaly blackish Fruit, commonly called *Cherimolia* or *Cherimonias*, in the *Spanish West-Indies*.

These three Sorts grow in several Parts of the *Spanish West-Indies*, where they are cultivated for their Fruits, which are greatly esteemed by the Inhabitants.

They are very tender Plants, therefore must be preserved in the warmest Bark-stove, otherwise they will not live in this Country. They are propagated by Seeds, which should be sown in Pots filled with rich light Earth, and plunged into a Hot-bed of Tanners Bark. When the Plants are come up two Inches high, they should be transplanted into separate small Pots filled with light rich Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken Root; after which time they must be treated, as hath been directed for the *Anona's*, in the former Volumes of the *Gardeners Dictionary*.

The third Sort is much cultivated in the Gardens in *Peru*, and several other Places in the *Spanish West-Indies*, where the Fruit is greatly esteemed, being by many Persons preferred to the Pine-apple. This Tree seldom grows above twelve or fourteen Feet high in the *West-Indies*: so that we may hope to see the Fruit in Perfection in this Country in a few Years; because, as the Tree is of humble Growth, it may be contained in the warmest Stoves.

The Seeds of this Kind were brought into *England* in the Year 1734, from the *Spanish West-Indies*, by a very curious Gentleman; from which many Plants have been raised, which have flourished greatly, where proper Care was taken; so that there are many Plants already

[Mar. 1738.] eight or nine Feet high, which may be expected to produce Fruit in a Year or two at farthest. This is propagated by Seeds, which must be sown and managed as is directed for the former Sorts, and must be constantly preserved in the Bark-stove.

GUAZUMA, Bastard Cedar Tree, *vulgò.*

The Characters are ;

It hath a regular Flower consisting of five Leaves, which are hollowed like a Spoon at their Base, but at their Tops are divided into two Parts, like a Fork. The Flower-cup consists of three Leaves, from whence arises the Pointal, which afterward becomes a roundish warted Fruit, which has five Cells inclusing many Seeds.

The Species are ;

1. GUAZUMA *arbor ulmi-folia, fructu ex purpura nigra. Plum. Nov. Gen.* The Bastard Cedar Tree, *vulgò.*

2. GUAZUMA *frutex, Chamædryfolia, fructu lanuginoso, major. Plum. Nov. Gen.* Shrubby Guazuma, with a Ground-pine-leaf, and a larger woolly Fruit.

3. GUAZUMA *frutex chamædryfolia, fructu lanuginoso, minor. Plum. Nov. Gen.* Shrubby Guazuma, with a Ground-pine-leaf, and a lesser woolly Fruit.

The first Sort grows plentifully in the low Lands in *Jamaica*, where it rises to the Height of forty or fifty Feet, and has a large Trunk. The Timber of this Tree is cut into Staves, for Casks of all sorts, and used for many other Purposes. The Fruit is eat by Cattle as it falls from the Trees, and is esteemed very good to fatten them ; so that the Planters often leave these Trees standing in their Savannas, when they clear them from all other Wood ; because, when there is a Scarcity of

Grass and other Food, these Fruit are a great Support to their large Cattle.

The other two Sorts are pretty common in several Parts of the *West-Indies*, where they grow about ten or twelve Feet high ; but are of little Use to the Inhabitants.

These Plants may be propagated by Seed, which should be sown early in the Spring, in small Pots filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark : these Pots of Earth must be frequently watered to promote the Vegetation of the Seed ; and if the Nights prove cold, the Glasses of the Hot-bed must be covered with Mats, to preserve a moderate Warmth in the Bed ; but in the Day-time, when the Sun shines warm, the Glasses should be raised, to let the Steam which arises from the Bed, pass off. When the Plants appear above Ground, they must be carefully cleared from Weeds, and often refreshed with Water ; and the Glasses must be raised to admit fresh Air to them, otherwise they will draw up too weak : and when they are about three Inches high, they must be shaken out of the Pots, and parted scarefully, planting each into a separate small Pot filled with light fresh Earth, and then plunged into the Hot-bed again, being careful to screen them from the Heat of the Sun, until they have taken new Root ; after which time they must have fresh Air admitted to them every Day, in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed : they must also be frequently refreshed with Water in hot Weather, which will greatly promote their Growth. In this Bed the Plants may remain all the Summer, being careful to keep them clear from Weeds ; and when the

the Plants have filled the small Pots with their Roots, they should be shaken out, and their Roots trimmed, and then put into Pots a Size larger. About *Michaelmas* the Plants must be removed into the Stove, and plunged into the Tan in a warm Part of the Stove. During the Winter Season they will not require so much Water as in Summer; but they must be frequently refreshed with a little Water, especially if the Stove is kept warm. If their Leaves should contract Filth, it must be carefully washed off with a Sponge; for if it is suffered to remain on them, it will greatly injure the Plants. These Plants being very tender, they must constantly remain in the Stoves, giving them a good Share of fresh Air in Summer; but in Winter they must be kept very warm, otherwise they will not live in this Country; but if they are carefully managed, they will thrive very well, and afford an agreeable Variety in the Stove, amongst other tender Exotic Plants of the same Countries.

GUIDONIA.

To this *Article* must be added;

1. *GUIDONIA ulmi foliis, flore niveo. Plum. Nov. Gen.* Guidonia with elm Leaves, and a white Flower.

2. *GUIDONIA aurantii foliis, aculeata. Plum. Nov. Gen.* Prickly Guidonia, with orange Leaves.

3. *GUIDONIA nucis juglandis foliis, major. Plum. Nov. Gen.* Greater Guidonia, with walnut-tree Leaves.

4. *GUIDONIA nucis juglandis foliis, minor. Plum. Nov. Gen.* Lesser Guidonia, with walnut-tree Leaves.

These four Sorts are tenderer than that which is mentioned in the former Volumes of the *Gardeners Dictionary*; and must be placed in the Bark-

stove, especially while they are young, which will greatly forward their Growth: they may be all propagated by Seeds, which should be sown in Pots filled with light fresh Earth early in the Spring, and plunged into a Hot-bed of Tanners Bark. When the Plants come up, they must be duly watered, and clear'd from Weeds, in the Day-time. When the Weather is warm, the Glasses of the Hot-bed must be tilted with Stones, to admit fresh Air to the Plants; but if the Nights prove cold, the Glasses must be covered with Mats, to keep the Bed warm. When the Plants are about three Inches high, they should be carefully taken up, and each transplanted into a separate Pot, and plunged into the Hot-bed again, observing to shade them from the Sun until they have taken Root; after which time they must be treated as hath been directed for the Guazuma. The two first Winters, these Plants may be placed in the Bark-stove; but when they have acquired Strength, they may be inured to bear the open Air in the warmest Part of the Summer; and in Winter they may be placed on Stands in the dry Stove, where, if they are kept in a moderate Temperature of Warmth, they will thrive very well, and produce their Flowers every Year in *July* and *August*; but they rarely perfect Seeds in this Country.

They may be also propagated by laying their Branches down into the Earth: this should be done in *April*; and if they are duly watered, they will be rooted enough to transplant by the following Year; when they should be taken off and transplanted into Pots, and managed as is directed for the seedling Plants. But when it is proposed to increase these Plants after this manner, it will be proper

to encourage some Shoots near the Bottom of the Stems of the old Plants (from whence they are very apt to send forth Shoots); because these will be much more convenient to make Layers, than those which are placed higher from the Earth.

Some of these Plants will grow from Cuttings, when they are rightly managed. These Cuttings should be planted in the Beginning of April (just before the Plants begin to shoot) in Pots filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root, which will be in about two Months, if they succeed; when they may be inured to bear the open Air by degrees, and in August they may be transplanted into separate Pots, and afterward must be managed as is before directed for the seedling Plants and Layers. The Plants thus raised, will produce Flowers much sooner than those raised from Seed; but they seldom grow to make so large Plants as those do.

GUNDELIA.

This Plant was so named by Dr. TOURNEFORT, in Honour to Dr. GUNDELSCHMEIMER, who found it in his Travels in Company with Dr. TOURNEFORT in the *Levant*.

The Characters are;

It is a Plant with a flosculous Flower, gathered into a kind of Head, consisting of many Florets, coming out of a common Empalement, and sitting on the Embryos of the Seed, which are hid in the Cells of the Empalement, and afterward becomes roundish Seeds ending in a Point.

The Varieties of this Plant are;

1. *GUNDELIA orientalis, acanthi aculeati foliis, floribus intense purpureis, capite araneosa lanugine obsito.*

Tourn. Cor. Eastern Gundelia, with a prickly Bears-breech-leaf, deep purple Flowers, and an Head woven, as it were, with a Cobweb.

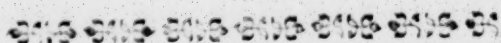
2. *GUNDELIA orientalis, acanthi aculeati folio, capite glabro. Tourn. Cor.* Eastern Gundelia, with a prickly Bears-breech Leaf, and a smooth Head.

The second Sort is figured and described in the second Volume of Dr. Tournefort's Travels in the *Levant*. It was discovered, as I find, by Dr. Gundelscheimer near Baibut, in their Journey to *Armenia*, growing in dry stony Places.

The first Sort seems to be a Variety of the second, and was found intermixed with it in the same Places.

These Plants are propagated by Seed, which should be sown the Beginning of March, in a warm dry Border of fresh, but lean Earth; for they will not live long in a moist rich Soil. When the Plants come up, they must be carefully cleared from Weeds; as they grow large, they should be thinned and transplanted out in warm Borders, leaving the Plants which are designed to remain about two Feet asunder, that they may have Room to spread. After this there is no other Culture required, but to keep them clear from Weeds; and in two Years they will produce their Flowers, when they will make a fine Appearance amongst other hardy Flowers in the Pleasure-garden; but these Plants rarely perfect Seeds in this Country, which is the Case of several other of the headed Plants; for if the Season should prove moist at the time when the Plants are in Flower, the Wet soaks into the Empalement where the Embryos of the Seed are lodged, which prevents their ripening, so that the Seeds must be procured from Abroad.

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HEDYSARUM, *French Honey-*
suckle.

To this *Article* must be added ;

1. HEDYSARUM *annuum, filiqua aspera undulata intorta. Tourn.* Annual *French Honey*suckle, with a rough waved and wreathed Pod.

2. HEDYSARUM *Alpinum, filiqua levi, flore purpureo-cæruleo. Tourn.* Alpine *French Honey*suckle, with a smooth Pod, and a blue purple Flower.

3. HEDYSARUM *Alpinum, filiqua levi, flore albido. Tourn.* Alpine *French Honey*suckle, with a smooth Pod, and a white Flower.

4. HEDYSARUM *minus diphyllum, flore luteo. Sloan. Cat.* Smaller two-leav'd *French Honey*suckle, with a yellow Flower.

5. HEDYSARUM *triphyllum fruticosum, flore purpureo, filiqua varie distorta. Sloan. Cat.* Three-leav'd shrubby *French Honey*suckle, with a purple Flower, and a variously distorted Pod.

6. HEDYSARUM *triphyllum fruticosum minus. Sloan. Cat.* Smaller three-leav'd shrubby *French Honey*suckle.

7. HEDYSARUM *triphyllum fruticosum supinum, flore purpureo. Sloan. Cat.* Three-leav'd shrubby dwarf *French Honey*suckle, with a purple Flower.

8. HEDYSARUM *annuum majus Zeylanicum, mimosæ foliis. Tourn.* The greater annual *French Honey*suckle of *Zeylon*, with Leaves like the sensitive Plant.

9. HEDYSARUM *annuum minus Zeylanicum, mimosæ foliis. Tourn.* The lesser annual *French Honey*suckle

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of *Zeylon*, with Leaves like the sensitive Plant.

10. HEDYSARUM *arborescens, foliis mimosæ. Plum. Cat.* Shrubby *French Honey*suckle, with Leaves like the sensitive Plant.

11. HEDYSARUM *caule hirsuto, mimosæ foliis alatis, pinnis acutis minimis gramineis. Sloan. Cat.* *French Honey*suckle with a hairy Stalk, winged Leaves like the sensitive Plant, and smallest pointed grass-like Wings.

12. HEDYSARUM *minimum procumbens, foliis pinnatis subrotundis, flore luteo. Houst.* Smaller trailing *French Honey*suckle, with roundish winged Leaves, and a yellow Flower.

13. HEDYSARUM *triphyllum frutescens, foliis subrotundis, & subtus sericeis flore purpureo. Houst.* Three-leav'd shrubby *French Honey*suckle, with roundish Leaves, which are silky underneath, and a purple Flower.

14. HEDYSARUM *triphyllum humile, flore conglomerato, calyce villoso. Houst.* Dwarf three-leav'd *French Honey*suckle, with Flowers growing in Clusters, and a hairy Cup.

15. HEDYSARUM *triphyllum procumbens, foliis rotundioribus & minoribus, filiquis tenuibus & intortis. Houst.* Trailing three-leav'd *French Honey*suckle, with smaller and rounder Leaves, and narrow intorted Pods.

16. HEDYSARUM *triphyllum, caule triangulari, foliis mucronatis, filiquis tenuibus intortis. Houst.* Three-leav'd *French Honey*suckle, with a triangular Stalk, pointed Leaves, and a narrow intorted Pod.

17. HEDYSARUM *triphyllum annuum erectum, filiquis intortis, & ad extremitatem amplioribus. Houst.* Three-leav'd annual upright *French Honey*suckle, with intorted Pods, which are broad at their Extremity.

18. *HEDYSARUM triphyllum Americanum scandens, flore purpureo.* Three-leav'd climbing American French Honeyfuckle, with a purple Flower.

The first, second and third Sorts, being very hardy Plants, will live in the open Air in this Country. These are propagated by Seeds, which must be sown in *March*, in a Bed or Border of light Earth, in the Place where they are designed to remain; because, as they shoot their Roots deep into the Earth, they do not bear transplanting well. When the Plants appear above Ground, they must be carefully cleared from Weeds, which, if suffered to grow, would soon overbear the young Plants, and destroy them. As the Plants advance in their Growth, they should be thinned where they are too close, leaving those which are designed to flower, about a Foot or eighteen Inches apart. In dry Weather they will require some Water; and to keep them clear from Weeds, is all the Culture they want. In *July* they will flower, and, if the Autumn proves favourable, they will perfect their Seeds in *September*.

The fourth, fifth, sixth, seventh and eleventh Sorts, were discovered by Sir *Hans Sloane*, Bart. in *Jamaica*, from whence the Seeds have been sent into *England*, and have succeeded in several curious Gardens. These are all of them annual Plants, notwithstanding some of them grow shrubby, and will rise to the Height of eight or nine Feet; for they perish as soon as they have ripened their Seeds in the Country of their natural Growth.

The eighth and ninth Sorts were brought from *Ceylon* by the learned Botanist Dr. *Herman*, to the Physic-garden at *Leyden*: but they are not peculiar to that Country; for I have

received Seeds of both these Sorts from several Parts of *America*, which have flourished in the Physic-garden at *Chelsea*.

The tenth Sort was discovered by Father *Plumier*, in some of the French Settlements in *America*. The Seeds of this Sort were sent me from *Campechy*, by the late Dr. *William Houstoun*.

The twelfth, thirteenth, fourteenth, fifteenth, sixteenth and seventeenth Sorts, were discovered by the late Dr. *William Houstoun* at *La Vera Cruz*, *Jamaica*, *Campechy*, and *Cartagena*, from which Places he sent the Seeds and Specimens into *England*. The eighteenth Sort I received from *South-Carolina*, which grew in the Physic-garden at *Chelsea*.

These are most of them annual Plants, and as they are Native of warm Countries, they require to be tenderly managed, to make them thrive in this Country. The Seeds of these Plants should be sown on a Hot-bed the Beginning of *March*, and when the Plants are about two Inches high, they must be carefully transplanted each into a separate small Pot filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark, being careful to shade them from the Sun until they have taken Root; after which time they must have fresh Air admitted to them every Day by tilting the Glasses, in proportion to the Heat of the Weather: they must also be frequently refreshed with Water, which will greatly promote their Growth. When the Plants have filled these Pots with their Roots, they should be planted into larger; and as those Sorts which grow upright, rise to touch the Glasses of the Hot-bed, they should be removed into the Bark-bed in the Stove, or into a Glass-case, where they may have

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have Room to grow. If these Plants are brought forward early in the Spring, they will begin to flower by the Beginning of *July*, and then they will have time to ripen their Seeds before Winter; for if they are backward in flowering, they seldom perfect their Seeds in this Country.

The eighth Sort rarely perfects Seed in *England*; for it generally grows to be five or six Feet high, and is always late before it flowers; but the ninth Sort will produce good Seeds every Year, if it is rightly managed.

The thirteenth and eighteenth Sorts will abide two Years, provided they are placed in a warm Stove in Winter; and these Plants, when they are kept thro' the Winter, will flower early the following Summer, so that good Seeds may be obtained from them.

All these Plants afford an agreeable Variety in the Stove amongst other Exotic Plants in Autumn, when they are in Flower; so that they are preserved by those who are curious in Botany.

HELENIASTRUM, Bastard Elecampane.

The Characters are;

It hath a compound radiated Flower, consisting of many Florets, which are Hermaphrodite, and of Semiflorets, which are Female: the Ovaries stand on a naked Placenta, each bearing an antient Crown. All these Parts are included in a simple Empalement, which expands, and is cut almost to the Bottom in several Parts.

The Species are;

1. **HELENIASTRUM** *folio longiore & angustiore*. Vaill. Mem. Bastard Elecampane with a longer and narrower Leaf.

2. **HELENIASTRUM** *folio brevior*
& latiore. Vaill. Mem. Bastard

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Elecampane with a broader and shorter Leaf.

These Plants are both of them Natives of *America*; the Seeds of both Sorts I have received from *Virginia* and *New England*, where they grow wild in great Plenty in the Woods, and other shady Places, where the Ground is moist. They may be propagated by Seeds, or by parting of their Roots; but the latter is generally practised in this Country, because they seldom perfect their Seeds here; but if Seeds are procured from Abroad, they should be sown the Beginning of *March* on a warm Border of light Earth: and if the Seeds should not come up the first Year, the Ground should not be disturbed; because they often remain a whole Year under Ground, before the Plants appear; in which Case there is nothing more to be done, but to keep the Ground clear from Weeds, and wait until the Plants come up: when they appear, if the Season proves dry, they must be often watered, which will greatly forward their Growth; and where the Plants come up too close to each other, they should be thinned, and transplanted out into Beds a Foot asunder every way, being careful to shade them until they have taken Root, as also to water them in dry Weather. In the Autumn these Plants will produce their Flowers, which will continue till the Frost prevents them; and their Roots will abide many Years, and afford many Off-sets, by which they may be increased.

The best Season to transplant the old Roots, and to part them for Increase, is the Beginning of *March*, just before they begin to shoot; but if the Spring should prove dry, they must be duly watered, otherwise they will not produce many Flowers the same

same Year. These Plants should not be removed oftener than every other Year; for, as they do not spread their Roots very wide, they will continue within due Compass two Years very well. They delight in a Soil rather moist than dry, provided it be not too strong, or holds the Wet in Winter: but if they are planted in a dry Soil, they must be often and plentifully watered in dry Weather, to make them produce Plenty of Flowers.

These Plants generally rise about three Feet and a half, or four Feet high; and should be planted in the middle of large Borders, intermixed with Flowers of the same Growth, where they will make a pretty Variety, because they continue a long time in Flower: and as they require very little Care to cultivate them, they deserve a Place in every large Garden. Their Flowers resemble those of the smaller Kinds of Sunflower, and have been by some Botanists ranged in that Genus. The Time of their flowering is from June, until the Frost stops them.

HELENIUM, Elecampane.

The Characters are;

It hath a radiated Flower, whose Florets are Hermaphrodite, but the Semi-florets are Female; both these are yellow: the Ovaries, which rest on a naked Placenta, are crowned with Down: all these Parts are included in a scaly Cup. To these Notes may be added, the Leaves growing alternately on the Stalks, and the Flowers grow on the Top of the Branches.

The Species are;

1. HELENIUM vulgare. C. B. P. Common Elecampane.

2. HELENIUM virgæ pastoris folio, subtus incano & tomentoso. Vaill. Mem. Yellow Starwort, with a

wild Teasel-leaf, which is hoary and woolly underneath.

3. HELENIUM villosum, conyzæ folio, magno flore. Vaill. Mem. Yellow hairy Starwort, with a Fleabane-leaf, and a large Flower.

4. HELENIUM conyzæ folio, prægrandi flore, calyce pileosissimo. Vaill. Mem. Yellow Starwort, with a Fleabane-leaf, and a larger Flower, and a very hairy Cup.

5. HELENIUM Creticum, conyzæ folio, asphodeli radice. Vaill. Mem. Yellow Starwort of Crete, with a Fleabane-leaf, and an asphodel Root.

6. HELENIUM palustre, folio longiori lanuginoso. Vaill. Mem. Marsh yellow Starwort, with a longer woolly Leaf.

7. HELENIUM conyzæ folio lanuginoso, radice odorâ. Vaill. Mem. Yellow Starwort, with a woolly Fleabane-leaf, and a sweet-smelling Root.

8. HELENIUM palustre villosum odoratum, conyzæ folio. Vaill. Mem. Hairy marsh sweet-smelling Starwort, with a Flea-bane-leaf.

9. HELENIUM montanum villosum angustifolium, flore magno singulari. Vaill. Mem. Hairy mountain yellow Starwort, with a narrow Leaf, and a large single Flower.

10. HELENIUM lanuginosum angustifolium, summo caule ramoso. Vaill. Mem. Woolly yellow Starwort, with a narrow Leaf, and branching at the Top of the Stalks.

11. HELENIUM pratense autumnale, conyzæ foliis caulem amplexantibus. Vaill. Meadow yellow Starwort of the Autumn, with Fleabane-leaves encompassing the Stalks, commonly called *Conyza media*.

12. HELENIUM hirsutum, salicis folio. Vaill. Mem. Hairy yellow Starwort, with a Willow-leaf.

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13. *HELENium montanum, salicis folio subtus incano. Vaill. Mem.* Mountain yellow Starwort, with a Willow-leaf, which is hoary underneath.

14. *HELENium salicis folio glabro. Vaill. Mem.* Yellow Starwort, with a smooth Willow-leaf.

15. *HELENium spirææ folio. Vaill. Mem.* Yellow Starwort, with a Spirea-leaf.

16. *HELENium glabrum, myrti lato, serrato, cuspidatoque folio. Vaill. Mem.* Smooth yellow Starwort, with a broad, sawed, and pointed Myrtle-leaf.

17. *HELENium cisti folio non crenato, magno flore. Vaill. Mem.* Yellow Starwort, with a cistus Leaf, and a large Flower.

18. *HELENium lanuginosum, pilosellæ foliis. Vaill. Mem.* Woolly yellow Starwort, with Mouse-ear-leaves.

19. *HELENium palustre subbirsutum, foliis calthæ. Vaill. Mem.* Marsh roughish yellow Starwort, with Marygold-leaves.

20. *HELENium salicis folio, floribus parvis, fere umbellatis. Vaill. Mem.* Yellow Starwort, with a Willow-leaf, and small Flowers growing almost in an Umbel.

21. *HELENium palustre annuum, foliis crispis. Vaill.* Annual marsh yellow Starwort, with curled Leaves, commonly called Marsh Fleabane.

22. *HELENium palustre annuum, hyssopi foliis crispis. Vaill. Mem.* Marsh annual yellow Starwort, with curled Hyssop-leaves.

23. *HELENium ramosum, cauliculis sparsis, calthæ arvensis folio. Vaill. Mem.* Branching yellow Starwort, with sparfe Stalks, and a Field-marygold-leaf.

24. *HELENium Ægyptiacum tomentosum & incanum, bellidis foliis crispis. D. Lippi.* Hoary woolly

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Egyptian yellow Starwort, with curled daizy Leaves.

25. *HELENium Ægyptiacum tomentosum & incanum, polii folio. D. Lippi.* Hoary woolly Egyptian yellow Starwort, with a Mountain-pole-leaf.

26. *HELENium bellidioides, foliis amplis, asphodeli radice. Vaill. Mem.* Yellow Starwort, with large daizy Leaves, and an asphodel Root.

27. *HELENium perenne glabrum hyssopifolium. Vaill. Mem.* Smooth perennial yellow Starwort, with an Hyssop-leaf.

28. *HELENium perenne glabrum, folio crasso in summo tricuspido. Vaill. Mem.* Smooth perennial yellow Starwort, with a thick three-pointed Leaf.

29. *HELENium rorismarini crassis, obtusis, confertisque foliis. Vaill. Mem.* Yellow Starwort, with thick blunt Leaves growing in Clusters, commonly called Golden Samphire.

30. *HELENium saxatile, hyssopi folio villoso & glutinoso. Vaill. Mem.* Rock yellow Starwort, with a hairy clammy Hyssop-leaf.

The first Sort is the true Elecampane, which is used in Medicine: it grows wild in moist Fields and Meadows in several Parts of England, and is pretty much cultivated in Gardens near London, to furnish the Shops with Roots, which is the only Part of the Plant in Use.

This Sort may be propagated by Seeds, or from small Off-sets, which are furnished with Buds on their Tops. If you would propagate it by Seeds, they should be sown on a moist Bed of light Earth soon after they are ripe; for if they are kept long out of the Ground, they will not succeed: these Seeds generally remain in the Ground until the following Spring, when the Plants will begin to appear; at which time they must

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must be carefully weeded, and if the Season should prove dry, they must be frequently watered, which will greatly promote their Growth. In this Bed the Plants should remain till *Michaelmas* following, being careful to keep them constantly clear from Weeds during the Summer Season. Then you should prepare a Spot of Ground in proportion to the Number of Plants you have to transplant; which should be well digged, and cleansed from the Roots of all noxious Weeds; then you must carefully fork up the Roots of the seedling Plants, so as not to break them; and with a Dibble they should be planted in Rows about a Foot asunder, and nine Inches Distance in the Rows: in the planting of these Roots, you must observe to make the Holes deep enough to receive them, without being bent or broken, that the Crown of the Roots may be just under the Surface of the Ground; then close the Earth gently about them with your Feet. When the Plantation is finished, there will be no farther Care required until the Spring, when the Plants begin to shoot; at which time the Ground should be carefully houghed to clear it from Weeds, which Work must be repeated three or four times in the Spring, but always in dry Weather, which will intirely destroy the Weeds, if it be carefully performed; and when the Elecampane Plants have acquired Strength, they will keep the Weeds under, because their Leaves being large, will spread and cover the Ground. If the Ground is good in which the Plants are placed, the Roots will be large enough to take up the *Michaelmas* following; but if the Ground is very poor, or too dry, they should remain two Years after planting, before they are taken up for Use. Note, These Roots

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should not be taken up till the Leaves are decayed.

If you intend to propagate this Plant by Off-sets, you must take them carefully off from the old Roots at *Michaelmas*, (which is the time they are taken up for Use) so as to preserve a good Bud to each Off-set; then plant them in a well prepared Spot of Ground, in the same manner as hath been directed for the seedling Plants; and the following Summer they must be treated in the same manner as those.

All these Plants are ranged under the Genus of *Aster*, by Dr. *Tournefort*, as agreeing in the manner of their Flower and Seed with that Tribe: but as the Title of *Helenium* has been applied to the first Species by the Writers in Botany before his Time, and the outward Face of the Plant being very different from the Starworts, as also the Flowers being yellow; Monsieur *Vaillant*, Professor of Botany at *Paris*, has constituted a Genus by the Name of *Helenium*, and separated all the Species which have yellow Flower, from the *Asters*, and placed them under this Genus; for which Reason I have added the *English* Name of yellow Starwort to all the Species.

The eleventh Sort is very common by the Sides of Ditches and Ponds in most Parts of *England*, and is seldom planted in Gardens; because it creeps very much by the Root, and will soon overspread a large Spot of Ground, when it has once taken Root. This Sort is commonly known by the Name of Middle Fleabane in *England*.

The twenty-first Sort is also very common in *England*: this is an annual Plant, which sows itself on moist Grounds, where the Water usually stands in Winter; it flowers in *July* and *August*. This Plant is placed

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placed in the Catalogue of Simples annexed to the College Dispensatory, under the Title of *Conyza minor, flore globoso*; it is also called Pulicaria, because they say, the Smell of this Herb will drive away Fleas.

The twenty-ninth Sort grows on the Rocks, and gravelly Shores, by the Sea-side, in divers Parts of *England*, and is frequently gathered and brought to the Markets for Samphire, and pickled as such. This is often distinguished from the true Samphire, by the Title of Golden Samphire, because the Flowers are yellow.

The other Sorts are not Natives of this Country, but are all of them hardy enough to thrive in the open Air, and several of them will grow in shady Places, and under the Drip of Trees; so that they deserve to be propagated in the *English* Gardens. They are commonly propagated by parting of their Roots, because they seldom produce good Seeds in this Country. The best Time to part their Roots is in Autumn, when their Stalks begin to decay: in doing of this, you should be careful not to divide them too small, as also to preserve some good Buds to each Off-set. These should be planted in large Borders in the Pleasure-garden, intermixed with other hardy perennial Plants; where they will require no other Culture, but to keep them clear from Weeds, and to transplant the Roots every other Year, when they may be parted to increase them. In the Summer-time, when the Stalks are grown pretty high, they should have Sticks thrust into the Ground by each Root, and their Branches fastened thereto with Bais, to support them; otherwise they are often broken down by heavy Rains, or strong Winds, when they are in Flower; which renders them very unsightly in a neat Garden. Some of these

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Sorts begin to flower in *July*, and others succeed them, until the Frosts in Autumn put a Stop to their Flowering.

If these Plants are propagated by Seeds, they should be sown soon after they are ripe, in an open Bed of fresh Earth; for if the Seeds are kept out of the Ground till Spring, they seldom grow.

HELIANTHEMUM, Dwarf-cistus, or little Sunflower.

To this Article must be added;

1. HELIANTHEMUM *vulgare, flore albo*. Tourn. Common small Sunflower, with a white Flower.
2. HELIANTHEMUM *serpilli folio, flore minore aureo odorato*. Tourn. Small Sunflower, with a Mother of Thyme-leaf, and a smaller golden sweet-smelling Flower.
3. HELIANTHEMUM *angustifolium luteum*. Tourn. Yellow narrow-leav'd small Sunflower.
4. HELIANTHEMUM *foliis myrti minoris, subtus incanis*. Tourn. Small Sunflower with lesser Myrtle-leaves, which are hoary underneath.
5. HELIANTHEMUM *tenuifolium glabrum erectum, luteo flore*. Tourn. Narrow-leav'd smooth upright small Sunflower.
6. HELIANTHEMUM *tenuifolium glabrum, luteo flore, per humum diffusum*. J. B. Narrow-leav'd smooth small Sunflower, spreading on the Ground with a yellow Flower.
7. HELIANTHEMUM *folio thymi incano*. J. B. Small Sunflower, with a hoary Thyme-leaf.
8. HELIANTHEMUM *thymi folio glabro*. Tourn. Small Sunflower, with a smooth Thyme-leaf.
9. HELIANTHEMUM *ad nummulariam accedens*. J. B. Small Sunflower resembling Money-wort.
10. HELIANTHEMUM *foliis roris-marini splendentibus subtus incanis*. Tourn. Small Sunflower, with shining

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shining Rosemary-leaves hoary underneath.

11. *HELANTHEMUM Massiliense, coridis folio. Tourn.* Small Sunflower of *Marfeilles*, with a fair low Heath-pine-leaf.

12. *HELANTHEMUM polii folio ampliore, Lusitanicum. Tourn.* Portuguese small Sunflower, with a larger Mountain Poley-leaf.

13. *HELANTHEMUM polii folio angustiore, Lusitanicum. Tourn.* Portuguese small Sunflower, with a narrow Poley-mountain-leaf.

14. *HELANTHEMUM humilium Lusitanicum, halimi folio nigriore, magno flore luteo. Tourn.* Low Portuguese small Sunflower, with a black Sea-purslane-leaf, and a large yellow Flower.

15. *HELANTHEMUM Algarviense, halimi folio, flore luteo punicante maculâ signito. Tourn.* Small Sunflower of *Algarve*, with a Sea-purslane-leaf, and a yellow Flower spotted with Scarlet.

16. *HELANTHEMUM Hispanicum, halimi folio rotundiore. Tourn.* Spanish small Sunflower, with a round Sea-purslane-leaf.

17. *HELANTHEMUM Hispanicum, halimi folio angustiore. Tourn.* Spanish small Sunflower, with a narrow Sea-purslane-leaf.

18. *HELANTHEMUM Hispanicum, halimi folio minimo. Tourn.* Spanish small Sunflower, with the least Sea-purslane-leaf.

19. *HELANTHEMUM Lusitanicum, mari folio incano, flore luteo. Tourn.* Portuguese small Sunflower, with a hoary Marum-leaf, and a yellow Flower.

20. *HELANTHEMUM Lusitanicum, mari folio incano, capitulis valde hirsutis. Tourn.* Portuguese small Sunflower, with a hoary Marum-leaf, and very hairy Seed-vessels.

21. *HELANTHEMUM Lusitanicum,*

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majorana folio, flore luteo punicante maculâ insignito. Tourn. Portuguese small Sunflower, with a Marjoram-leaf, and a yellow Flower spotted with Scarlet.

22. *HELANTHEMUM Hispanicum, halimi folio amplissimo, incano & nervoso. Tourn.* Spanish small Sunflower, with a very large hoary ribbed Leaf.

23. *HELANTHEMUM Hispanicum, angusto folio, flore carneo. Tourn.* Spanish small Sunflower, with a narrow Leaf, and a carnation Flower.

24. *HELANTHEMUM Alpinum, oleæ folio subtus incano. Tourn.* Small Sunflower of the *Alps*, with an Olive-leaf hoary underneath.

25. *HELANTHEMUM Lusitanicum, bupleuri folio, flore maculato. Tourn.* Portuguese small Sunflower, with a Hares-ear-leaf, and a spotted Flower.

26. *HELANTHEMUM Lusitanicum, globulariæ folio. Tourn.* Portuguese small Sunflower, with a Daisy-leaf.

27. *HELANTHEMUM Hispanicum, origani folio subtus incano. Tourn.* Spanish small Sunflower, with an Origany-leaf hoary underneath.

28. *HELANTHEMUM plantaginis folio, perenne. Tourn.* Perennial small Sunflower, with a Plantain-leaf.

29. *HELANTHEMUM Hispanicum, folio minimo rotundiore. Tourn.* Spanish small Sunflower, with a very small round Leaf.

30. *HELANTHEMUM Hispanicum, ocymi folio subtus incano. Tourn.* Spanish small Sunflower, with a Basil-leaf hoary underneath.

31. *HELANTHEMUM pumilum, portulacæ marinæ folio argenteo. Tourn.* Dwarf small Sunflower, with a silvery Sea-purslane-leaf.

32. *HELANTHEMUM Creticum, linariæ folio, flore croceo. Tourn.* Candy small Sunflower, with a Toad-flax-leaf, and a saffron Flower.

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33. *HELANTHEMUM Creticum* *annuum, lato plantaginis folio, flore aureo.* Tourn. Cor. Annual Candy small Sunflower, with a broad Plantain-leaf, and a golden Flower.

34. *HELANTHEMUM Lusitanicum* *annuum, plantaginis folio, flore tricolore.* Tourn. Annual Portuguese small Sunflower, with a Plantain-leaf, and a three-coloured Flower.

35. *HELANTHEMUM frutescens, folio majoranæ incano.* Tourn. Shrubby small Sunflower, with a hoary Marjoram-leaf.

36. *HELANTHEMUM balimi folio brevior obtuso.* Tourn. Small Sunflower, with a shorter blunt Sea-purslane-leaf.

37. *HELANTHEMUM folio balimi latiore mucronato.* Tourn. Small Sunflower, with a broader sharp-pointed Leaf.

38. *HELANTHEMUM Americanum frutescens, portulacæ folio.* Plum. Cat. Shrubby American small Sunflower, with a Purslane-leaf.

The first Sort here mentioned is sometimes found wild in *England*, and is only a Variety of the common Sort, differing only in the Colour of the Flower.

The twenty-seven Sorts next following grow wild in *Portugal*, *Spain*, the South of *France*, and the *Alps*. These are all of them abiding Plants, which may be propagated by Seeds, in the manner directed in the former Volumes of the *Gardeners Dictionary*; and if they are planted on a warm Border, or on a sloping Bank, which is exposed to the South, they will live in the open Air in this Country very well. As these Plants require very little Trouble to cultivate them, they merit a Place in every large Garden; where if they are properly disposed, they will afford an agreeable Variety.

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These Plants should not be planted in a rich Soil; for they naturally grow on chalky Hills, or stony and gravelly Places, where they flower much better, and the Plants will continue longer, than when they grow on rich Earth. As all these Plants are humble of Growth, and spread the Branches near the Ground, they should not be placed among tall-growing Plants, which will over-bear them, nor should large Weeds be permitted to remain amongst them, because they will greatly weaken the Plants, and prevent their flowering.

The twenty-ninth, thirtieth, thirty-first and thirty-second Sorts, are of humbler Growth than the former Sorts, and seldom abide long; so that their Seeds should be carefully sowed, and sown to raise a Supply of young Plants to preserve their Kinds.

The thirty-third and thirty-fourth Sorts are annual Plants, so that their Seeds must be sown every Season, as was directed in the former Volumes of the *Gardeners Dictionary*, for the three annual Kinds there mentioned. These Seeds must be sown in the Places where they are designed to remain; for the Plants do not succeed well when they are transplanted: all the Culture they require, is to keep them constantly clear from Weeds; and where the Plants are too near together, to thin them: with this Management they will produce their Flowers, and perfect their Seeds; which, if permitted to scatter, will produce young Plants in Autumn; which in a warm Situation will live through the Winter, and come early to flower the following Spring.

The thirty-fifth, thirty-sixth and thirty-seventh Sorts, are shrubby Plants, which rise to the Height of four or five Feet; these are preserved in Pots, and removed into the Green-house

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house in Winter, being too tender to live in the open Air in this Country throughout the Year. They are usually propagated by Cuttings, because they seldom perfect Seeds in *England*. The best Time to plant the Cuttings, is in the middle, or latter End of *June*, after the Plants have been exposed in the open Air a sufficient time to harden the Shoots; for if they are taken off soon after the Plants are removed out of the Green-house, the Shoots are generally too weak to make Cuttings. They should be planted in a shady Border of light Earth, and frequently refreshed with Water; in about two Months afterward, the Cuttings will be sufficiently rooted to transplant, when they should be carefully taken up with Balls of Earth to their Roots, and each planted in a separate small Pot, filled with light fresh Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be placed amongst other hardy Exotic Plants in a sheltered Situation; where they may remain until the middle of *October*, when they must be removed into the Green-house. During the Winter Season, these Plants should have as much free Air as possible in mild Weather, and will require to be often watered; and in the Summer Season they must be removed into the open Air, and placed with other hardy Exotic Plants, such as Myrtles, Geraniums, &c. where they may be defended from strong Winds; and in hot dry Weather, they must be plentifully watered: with this Management the Plants will thrive, and in *June*, *July* and *August*, they will flower, at which time they will make a pretty Appearance amongst other Exotic Plants.

As these Plants sometimes produce

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good Seeds in *England*, or if their Seeds are procured from abroad; those Persons who are desirous to propagate them from Seed, should sow them the Beginning of *March*, on a very moderate Hot-bed, observing frequently to water the Bed to keep the Earth moist, otherwise the Seeds will not vegetate; and when the Plants appear above Ground, they should have a large Share of Air, otherwise they will draw up too weak: they must also be kept clear from Weeds, and frequently refreshed with Water: when the Plants are about two Inches high, they should be each transplanted carefully into a small Pot, filled with light fresh Earth, and plunged into a very moderate Hot-bed again, being careful to shade them from the Sun until they have taken Root; after which time they must be inured to bear the open Air by degrees, and in *June* they should be removed out of the Hot-bed, and placed in a sheltered Situation, and managed as hath been directed for those Plants which were raised from Cuttings.

The thirty-eighth Sort is much more tender than either of the former, being an Inhabitant of the warmest Parts of *America*. This was discovered by Father *Plumier*, in the *French* Settlements; and in the Year 1731. I had the Seeds of this Plant sent me by the late Dr. *William Houstoun*, from *La Vera Cruz*. This Sort grows about two Feet and a half, or three Feet high, and divides into many succulent Branches, which are beset with thick succulent Leaves, somewhat resembling those of Purslane: on the Top of the Branches is sent forth a slender Stalk about a Foot long, which is garnished with beautiful scarlet Flowers, growing in a Spike: these
Flowers

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Flowers are succeeded by tricapsular Seed-vessels, which are full of small Seeds.

This Sort, which was first procured by Seeds from abroad, has been since propagated by Cuttings, and dispersed into several Parts of Europe. The best Season for planting of these Cuttings is in *July*; but they should be cut from the Plant, and laid to dry four or five Days before they are planted, otherwise they are very subject to rot. These Cuttings should be planted in Pots, filled with light fresh sandy Earth, and plunged into a moderate Hot-bed, being careful to shade them from the Sun in the Heat of the Day, as also to refresh them now and then with a little Water; but they must not be kept too moist, lest that should rot them. The Glasses of the Hot-bed should also be raised every Day, to admit fresh Air to the Plants, in proportion to the Warmth of the Season. With this Management the Cuttings will take Root in about a Month, when they may be exposed to the Sun, giving them a proportionable Quantity of Air; but they should remain in the Bed till the latter End of *September*, when they should be removed into the dry Stove, and placed in the warmest Part, where they may have Sun and Heat. During the Winter Season they should be sparingly watered, but in Summer they should have a greater Share, as also a large Quantity of fresh Air; but they must constantly remain in the Stove.

HELLEBORINE, Bastard Hellebore.

To this *Article* must be added;

1. **HELLEBORINE** *latifolia*, *flore albo clauso*. *Raii Syn.* Broad-leav'd Bastard Hellebore, with a white shut Flower.

2. **HELLEBORINE** *foliis prælongis*
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angustis acutis. *Raii Syn.* Bastard Hellebore, with longer narrow pointed Leaves.

3. **HELLEBORINE** *palustris nostras*. *Raii Syn.* Marsh Bastard Hellebore.

4. **HELLEBORINE** *montana angustifolia purpurascens*. *C. B. P.* Narrow-leaved purple mountain Bastard Hellebore.

5. **HELLEBORINE** *Virginiana, ophioglossi folio*. *D. Banist.* Bastard Hellebore of *Virginia*, with an Adders-tongue-leaf.

6. **HELLEBORINE** *Mariana, bupleuri angustissimo folio, purpurascens flore, caule aphyllis*. *Pluk.* Bastard Hellebore of *Maryland*, with a very narrow Leaf, like that of Hares-ear, a purplish Flower, and a Stalk without a Leaf.

7. **HELLEBORINE** *Mariana, flore pallide purpureo, trianthophoros*. *Pluk. Mantiss.* Bastard Hellebore of *Maryland*, with pale purple Flowers, growing three on a Stalk.

8. **HELLEBORINE** *Mariana monanthos, flore longo purpurascens liliaceo*. *Pluk. Mantiss.* Bastard Hellebore of *Maryland*, with one long purplish lily-shaped Flower.

9. **HELLEBORINE** *Virginiana, flore rotundo magno ex purpureo albicante*. *Banist. Cat.* Bastard Hellebore of *Virginia*, with a large round Flower of a purplish white Colour.

10. **HELLEBORINE** *foliis liliaceis, asphodeli radice*. *Plum. Cat.* Bastard Hellebore of *America*, with Leaves like the Lily, and an asphodel Root.

11. **HELLEBORINE** *purpurea, tuberosa radice*. *Plum. Cat.* Purple Bastard Hellebore, with a tuberose Root.

12. **HELLEBORINE** *Americana, foliis longissimis, tuberosa radice*. *American* Bastard Hellebore, with very long Leaves, and a tuberose Root, commonly called, the Flower of the Holy Ghost.

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13. *HELLEBORINE graminea, foliis rigidis carinatis.* Plum. Cat. Grass-like Bastard Hellebore, with stiff Leaves.

The first, second and third Sorts, grow wild in many Parts of *England*; the fourth Sort has been found in *Ireland*, and is pretty common in other Parts of *Europe*. These may be transplanted into Gardens, from the Places of their natural Growth, either in the Spring, soon after they appear above Ground, or in Autumn, when their Leaves begin to decay; but if they are transplanted in the Spring, there should be great Care had, to preserve a large Ball of Earth to their Roots, otherwise they will not succeed. These Plants should be planted in shady moist Places, and in a strong undunged Soil, where they will continue many Years, and produce their Flowers toward the latter Part of the Summer.

The fifth, sixth, seventh, eighth and ninth Sorts, are Natives of *Virginia*, *Maryland* and *New England*; from which Places some of their Roots have been brought into *England*. The best Method to obtain these Kinds, is to procure some of their Roots to be taken up with Balls of Earth, and planted into Tubs of the natural Soil in which they grew, as close together as possible; these Tubs should remain in the Country, until the Leaves of the Plants begin to decay, when they may be put on board the Ships, and sent over; for as the Roots will then be in a State of Inaction, they will be in less Danger of suffering in their Passage, than if they were in a vigorous growing State, and will require very little (if any) Water. These Plants may be planted out of the Boxes into small Wilderness Quarters, where they will abide the Cold of the Winter very well, and produce their Flowers in Summer.

The tenth and eleventh Sorts were discovered by Father *Plumier*, in the *French Settlements in America*; both these Sorts were sent by the late Dr. *William Houstoun* from *Jamaica*, where they grow in the Woods and shady Places in great Plenty. The eleventh Sort was also sent from the *Bahama Islands*, to Mr. *Peter Collinson*, and hath been since distributed to many curious Persons in *England*. This is a very curious Plant, and deserves a Place in the Stove, because it produces a most beautiful Spike of purple Flowers every Year. This and the former Sort are propagated by Off-sets, which they send forth plentifully: the best Season for transplanting the Roots, and taking off the Off-sets, is in the Beginning of *February*, just before they begin to shoot. These Roots should be planted in Pots, filled with light rich Earth, and then plunged into the Tan in the Stove, observing to refresh the Earth with Water now and then; but it must not be given to them in great Quantities, until they have sent forth their Leaves; for too much Moisture will rot these Roots, while they are in an unactive State. These Plants should constantly be kept in the Bark-bed in the Stove, otherwise they will not flower: during the Summer Season, they will require a larger Share of Moisture, and in hot Weather, they should have plenty of fresh Air; but in Winter they must be kept warm, otherwise the Roots will perish. With this Management the Plants will thrive exceedingly, and produce their beautiful Flowers in *August*. The Roots of these Plants should not be disturbed in Winter: for although their Leaves decay in Autumn, and their Roots remain inactive, yet if they are taken up and kept out of the Ground, they are very apt to shrink, unless great Care be

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be taken of them. The eleventh Sort was by Accident procured in *England*, the Root being sent over as a Specimen of the Plant, which was dried, and sent to Mr. *Collinson*; he took off the Root, and had it planted in the Stove at Sir *Charles Wager's* Garden; it grew and flowered; from which Root there has been a great Number produced. This Sort produces a Spike of Flowers near two Feet long, which being of a bright purple Colour, make a fine Appearance in the Stove.

The twelfth Sort grows in great Plenty on the Sides of the Road between *Porto Bello* and *Panama*, in the *Spanish West-Indies*, in shady Places, and on a stony Soil. The *Spaniards* say, it is only to be found in this Place, and that it cannot be transplanted to any other Part of the Country, so as to grow. The Flowers of this Plant resemble a Dove, from whence the *Spaniards* gave it the Name of the Holy Ghost. Some of these Roots were sent to *England* by Mr. *Robert Millar*, Surgeon, who was on the Spot where they grow; some of which are still alive in *England*, but have not as yet produced any Flowers. This and the thirteenth Sort are both very tender Plants; and, if they are brought into *England*, they must be treated very tenderly; their Roots should be planted in Pots, filled with a sandy Soil mixed with lime Rubbish; and then plunged into a Hot-bed of *Tanners Bark*, being careful not to give them too much Water, until they begin to shoot; after which time they should be frequently watered. During the Summer Season these Plants must have some fresh Air admitted to them; but in Winter they must have a very warm Situation. These put forth their green Leaves in *May*, which continue till Autumn,

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when they decay; so that their Roots remain inactive above six Months.

There are many other Sorts of these Plants, which are Natives of *America*; but the greater Part of them growing on Trees, cannot be cultivated in Gardens; wherefore it is needless to enumerate them here.

HELLEBORUS, Hellebore.

The Species omitted in the former Volumes, are;

1. HELLEBORUS *niger bortenensis* alter. C. B. P. The other garden black Hellebore.

2. HELLEBORUS *niger, amplioribus foliis*. Tourn. Black Hellebore, with larger Leaves.

3. HELLEBORUS *niger autumnalis, flore maximo*. H. R. Par. Autumnal black Hellebore, with a very large Flower.

4. HELLEBORUS *niger, sanguineo folio*. Bocc. Mus. Black Hellebore, with a bloody Leaf.

5. HELLEBORUS *niger orientalis, amplissimo folio, caule præalto, flore purpurascente*. Tourn. Cor. Eastern black Hellebore, with a very large Leaf, a tall Stalk, and a purplish Flower.

These Plants are not Natives of this Country, but are hardy enough to bear the Cold of our Winters very well in the open Air: they require a shady Situation, and thrive best in a strong loamy Soil; for if the Ground is hot and dry, in which they are planted, they will not thrive, or produce any Flowers.

They may be propagated by parting of their Roots, or from Seeds, as is directed in the former Volumes, for those Species which are enumerated there; to which the Reader is desired to turn, to avoid Repetition.

HERMANNIA.

To this Article must be added;

1. HERMANNIA *frutescens, folio oblongo molli cordato hirsuto*. Boerb.

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Ind. Shrubby *Hermannia*, with a soft oblong hairy heart-shaped Leaf.

2. *HERMANNIA frutescens, folio multifido tenui, caule rubro.* Boerb.

Ind. alt. Shrubby *Hermannia*, with a narrow multifid Leaf, and a red Stalk.

3. *HERMANNIA frutescens, folio lavendulae latiori & obtuso, flore parvo aureo.* Boerb. *Ind. alt.* Shrubby *Hermannia*, with a broad blunt lavender Leaf, and a small golden Flower.

These three Sorts of *Hermannia* are Natives of the *Cape of Good Hope*, from whence they have been brought into the *European* Gardens. They may be propagated by Cuttings, which should be planted in *June*, on a Bed of light Earth, observe to shade them from the Sun until they have taken Root, as also to refresh them with Water. When the Cuttings have taken Root, they may be exposed to the open Air; but it will be proper to let them remain in the Bed until the Middle or latter End of *August*, when they should be carefully taken up, and each planted in a separate small Pot, and placed in the Shade until they have taken new Root; after which time they may be exposed with other hardy Exotic Plants, in a sheltered Situation, till *October*; when they must be removed into the Green-house, and placed where they may enjoy a large Share of Air in mild Weather; but must be protected from Frost, and treated as hath been directed for those Sorts enumerated in the former Volumes.

HERMODACTYLUS, The *Hermodactyl*, commonly called *Snakes-head Iris*.

The *Characters* are;

It hath a lily-shaped Flower, consisting of one Leaf, and shaped exactly like an Iris; but has a tuberosa Root,

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divided into two or three Dugs, like oblong Bulbs.

We have but one *Species* of this Plant; which is,

HERMODACTYLUS folio quadrangulo. C. B. P. *Snakes-head Iris, vulgò.* This is also called, *Iris tuberosa Belgarum; i. e.* The tuberosa *Iris* of the *Dutch*.

This Plant is easily propagated by its Tubers, which should be taken off after the green Leaves decay, which is the proper Season for transplanting of the Roots; but they should not be kept long out of the Ground, lest they shrink; which will cause them to rot when they are planted. They should have a loamy Soil, not too strong, and must be planted to an East Aspect, where they will flower very well. These Roots should not be removed oftener than once in three Years, if you design to increase them; but then they should be planted at a farther Distance from each other than if they were to remain but one Year, and the Beds should be kept clear from Weeds, and at *Michaelmas* there should be some fine Earth laid over the Beds, which will greatly strengthen their Roots. The Distance which these Plants should be allowed is six Inches square; and they should be placed four Inches deep in the Ground. These produce their Flowers in *May*, and their Seeds are ripe in *August*; but as they multiply pretty fast by their Roots, so few People are at the Trouble to raise them from Seeds; but those who have an Inclination so to do, must treat them in the manner directed for the bulbous *Iris*'s.

This Plant has by some Botanic Writers been supposed the true *Hermodactyl*; but what has been long used in *Europe* for that, is a true *Colchicum*.

HIERACIUM. Hawkweed.

The Species omitted in the former Volumes, are ;

1. *HIERACIUM longius radicum.*
Ger. Emac. Long-rooted Hawkweed.

2. *HIERACIUM minus, præmorsa radice.* Park. Hawkweed with bitten Roots, or yellow Devils-bit.

3. *HIERACIUM primum latifolium.*
Clus. Broad-leaved Hungarian Hawkweed.

4. *HIERACIUM fruticosum latifolium hirsutum.* C. B. Bushy Hawkweed, with broad rough Leaves.

5. *HIERACIUM fruticosum latifolium glabrum.* Park. Theat. Smoother broad-leav'd bushy Hawkweed.

6. *HIERACIUM fruticosum angustifolium majus.* C. B. Narrow-leav'd bushy Hawkweed.

7. *HIERACIUM pulmonaria dictum, angustifolium.* Raii Syn. Narrow-leav'd Hawkweed, commonly called golden Lungwort.

8. *HIERACIUM macrocaulum hirsutum, folio rotundiore.* D. Lawson. Round-leav'd rough Hawkweed, with a tall Stalk.

9. *HIERACIUM λεπτοκάλυον hirsutum, folio longiore.* D. Lawson. Slender-stalk'd rough Hawkweed, with a longer Leaf.

10. *HIERACIUM murorum, laciniatum minus pilosum.* C. B. Golden Lungwort, with more jagged Leaves.

11. *HIERACIUM murorum, folio longiore dissecto, maculis lividis asperso.* Vaill. Mem. Acad. Scien. Long cut-leav'd golden Lungwort, with spotted Leaves.

12. *HIERACIUM castorei odore, Monspelienfum.* Raii Syn. Hawkweed of Montpellier, smelling like Castor.

13. *HIERACIUM luteum glabrum, five minus hirsutum.* J. B. Smoother yellow Hawkweed.

14. *HIERACIUM montanum, cichorei folio, nostras.* Raii Syn. Succory-leav'd mountain Hawkweed.

15. *HIERACIUM maximum, chondrillæ folio, asperum.* C. B. The greatest rough succory-leav'd Hawkweed.

16. *HIERACIUM echinoides, capitulis cardui benedicti.* C. B. Hawkweed like Vipers Bugloss, with Heads like the Blessed-thistle, commonly called Ox-tongue.

17. *HIERACIUM pulmonaria dictum latifolium humiliss, ramulis expansis.* Act. Phil. N. 417. Dwarf branching Hawkweed, with broad Leaves.

18. *HIERACIUM Sabaudum altissimum, foliis latis brevibus crebris nascentibus.* Mor. Hist. Tallest Savoy Hawkweed, with short broad Leaves.

19. *HIERACIUM fruticosum, angustissimo incano folio.* H. L. Bushy Hawkweed, with very narrow hoary Leaves.

20. *HIERACIUM Pyrenaicum rotundifolium amplexicaule.* Inst. R. H. Round-leav'd Pyrenean Hawkweed, whose Leaves embrace the Stalks.

21. *HIERACIUM murorum, foliis maculis & lituris atro-rubentibus pulchre variegatis.* Vaill. Mem. Acad. Scien. Hawkweed whose Leaves are beautifully marked with dark-red Spots.

22. *HIERACIUM fruticosum latifolium, foliis dentatis, glabrum.* C. B. Broad-leav'd bushy Hawkweed, with smooth indented Leaves.

23. *HIERACIUM magnum Dalechampii, folio minus laciniato.* Greater Hawkweed of Dalechamp, with less cut Leaves.

24. *HIERACIUM magnum Dalechampii, folio majus laciniato.* Greater Hawkweed of Dalechamp, with more cut Leaves.

The seventeen Sorts first mentioned are Natives of England; some of

them grow in shady Woods, and others upon dry Banks, and on old Walls in divers Places. The first eleven and the seventeenth Sorts are abiding Plants, which may be propagated either by parting of their Roots, or from Seed: if they are propagated by parting of their Roots, it must be done about *Michaelmas*, that the Plants may be rooted before the Frost comes on; for if this Work be deferred till the Spring, the Plants will not have taken good Root before the Summer comes on, which will cause them to flower weak. These Roots should not be removed oftener than every third Year, because when the Plants have a Number of Heads, they will send forth so many Stalks for flowering; whereby they will make a more beautiful Appearance.

The five next mentioned Sorts are not Natives of this Country, but they are equally hardy with those before-mentioned, and may be propagated in the same manner. These Plants are seldom introduced into Gardens, because they are common in *England*; but they may be planted in Wilderness Quarters, and under the Shade of Trees, where they will thrive very well, and afford an agreeable Variety where few other Plants will live; and as they require no farther Care after planting, the Trouble will be little in procuring of the Plants; and when they are once fixed in the Ground, they will abide many Years without any farther Culture. If the Seeds of these Plants are permitted to scatter, they will produce a plentiful Supply of young Plants: or when a Person is desirous to propagate them by Seeds, it should be sown in Autumn, soon after it is ripe; for if it is kept till the Spring, it doth not succeed so well.

The thirteenth, fourteenth, fifteenth and sixteenth Sorts, are also

Natives of *England*; but are not abiding Plants, for they seldom continue longer than two Years. The Seeds of these Plants may be sown on an open Bed or Border of fresh undunged Earth; and when the Plants come up, they should be cleared from Weeds, and thinned where they are too thick, which is all the Culture they require. If these Seeds are sown in Autumn, just after they are ripe, the Plants will soon appear, and get Strength before Winter, and will flower the following Summer; but if they are not sown till the Spring, the Plants seldom flower until the Year after.

The twenty-third and twenty-fourth Sorts grow wild in the South of *France*, and in *Italy*; yet are hardy enough to endure the Cold of our ordinary Winters very well in the open Air. The Seeds of these Plants should be sown in the Spring, on a Bed of fresh undunged Earth, where they are designed to remain (because they seldom succeed when they are transplanted). When the Plants are come up, they should be cleared from Weeds; and where they are too close, they should be thinned, leaving them about eight or ten Inches asunder. Some of these Plants will flower the first Year they are sown, but these will not produce good Seeds, but those which live over the Winter, will flower early the following Summer; and, if the Season proves favourable, will produce good Seeds in *August*. The Plants seldom continue longer than two Years; so that Seeds should be annually sown, in order to preserve their Kinds; for as they continue in Flower the greatest Part of the Summer, they merit a Place in every good Garden.

HORDEUM, Barley.

In the former Volumes of the *Gardeners Dictionary*, there are three Sorts

Sorts of Barley mentioned; viz. Common long-eared Barley, Square Barley or Big, and Sprat or Battle-door Barley; but, beside these three, there are two other Sorts which are cultivated in *England*; which are, the Rath-ripe, and Naked Barley; this last is sometimes called *French Barley*. This makes tolerable good Bread, very good Malt, and yields a large Increase.

All these Sorts of Barley are sown in the Spring of the Year, in a dry time; in some very dry light Land the Barley is sown early in *March*, but in strong clayey Soils it is not sown till *April*, and sometimes not until the Beginning of *May*; but when it is sown so late, if the Season doth not prove very favourable, it is very late in Autumn before it is fit to mow, unless it be the Rath-ripe Sort, which is often ripe in nine Weeks from the time of sowing.

The Square Barley or Big, is chiefly cultivated in the North of *England*, and in *Scotland*, and is hardier than the other Sorts; but this is seldom sown in the South of *England*, though it might be cultivated to good Purpose on some strong cold clayey Lands, where the other Kinds do not thrive so well.

Some People sow Barley upon Land where Wheat grew the former Year; but when this is practised, the Ground should be ploughed the Beginning of *October* in a dry time, laying it in small Ridges, that the Frost may mellow it the better, and this will improve the Land greatly. Then in *March* the Ground is ploughed again, and laid even where it is not very wet; but in strong wet Lands the Ground should be laid round, and the Furrows made deep to receive the Wet. When this is finished, the Seed should be sown with a broad Cast at two Sowings; the

first being harrowed in once, the second should be harrowed until the Seed is buried: the common Allowance of Seed is four Bushels to an Acre.

When the Barley is sown, the Ground should be rolled after the first Shower of Rain, to break the Clods, and lay the Earth smooth; which will render it better to mow, and also cause the Earth to lie closer to the Roots of the Corn, which will be of great Service to it in dry Weather.

Where Barley is sown upon new broken up Land, the usual Method is, to plough up the Land in *March*, and let it lie fallow until *June*; at which time it is ploughed again, and sown with Turneps, which are eaten by Sheep in Winter, by whose Dung the Land is greatly improved; and then in *March* following the Ground is ploughed again, and sown with Barley as before.

There are many People who sow Clover with their Barley, and some have sown the Lucern with Barley: but neither of these Methods are to be commended; for where there is a good Crop of Barley, the Clover or Lucern must be so weak as not to pay for standing; so that the better Way is to sow the Barley alone without any other Crop among it, and then the Land will be at Liberty for any other Crop, when the Barley is taken off the Ground.

When the Barley is ripe, (which may be known by the Colour of the Ears and the Straw) it must be mowed down; and where there are a great Number of Weeds among it, it must lie on the Swarth till the Weeds are decayed; but if there should happen to fall Rain, the Barley must be shook and turned every Day, to prevent its sprouting or growing musty; and when it is well dried, it should

be made up in Cocks; for if it is housed or mowed too green, it is very apt to burn, which will render it unfit for Malting, and worse for most Purposes than if it sprouted in the Field. The usual Produce is from two to three Quarters of Barley on an Acre.

HORMINUM, Clary.

To this Article must be added;

1. *HORMINUM pratense, flore minimo. Schol. Bot.* Meadow Clary, with a very small Flower.

2. *HORMINUM spicatum, lavenderæ flore & odore. Bocc. Rar. Pl.* Spiked Clary, with the Flower and Smell of Lavender.

3. *HORMINUM napi folio. Moris. H. Elef.* Turnep-leav'd Clary.

4. *HORMINUM orientale, betonicae folio acutissimo, flore caeruleo. Tourn. Cor.* Eastern Clary, with a sharp-pointed Betony-leaf, and a blue Flower.

5. *HORMINUM orientale, betonicae folio acutissimo, flore albo. Tourn. Cor.* Eastern Clary, with a sharp-pointed Betony-leaf, and a white Flower.

6. *HORMINUM orientale latifolium glutinosum, flore partim albo, partim purpurascens. Tourn. Cor.* Eastern Clary, with broad glutinous Leaves, and a Flower partly white and partly purplish.

7. *HORMINUM orientale latifolium glutinosum, flore albo. Tourn. Cor.* Eastern Clary, with broad glutinous Leaves, and a white Flower.

8. *HORMINUM orientale, betonicae folio angustiore & inodoro. Tourn. Cor.* Eastern Clary, with a narrow Betony-leaf, without Smell.

9. *HORMINUM orientale, lamii folio. Tourn. Cor.* Eastern Clary, with a dead-nettle Leaf.

10. *HORMINUM orientale, foliis sclareae, flore albo parvo. Tourn. Cor.* Eastern Clary, with the Leaves of Sclarea, and a small white Flower.

11. *HORMINUM orientale, foliis rugosis & verrucosis angustis, flore albo. Tourn. Cor.* Eastern Clary, with rough narrow warted Leaves, and a white Flower.

12. *HORMINUM verbenæ laciniis, angustifolium. Triumph.* Clary with a narrow jagged vervain Leaf.

13. *HORMINUM orientale annuum, sativo simile, comâ carens, flore violaceo. Tourn. Cor.* Annual Eastern Clary, like the Garden Clary, wanting Tops, and a violet-coloured Flower.

These Plants were most of them discovered by Dr. Tournefort in the Levant, from whence he sent their Seeds to the Royal Garden at Paris, where they were cultivated, and have been since distributed to many curious Botanic Gardens. These are all of them very hardy Plants, which will live in the open Air in England, and are all of them abiding Plants except the last, which is an Annual; so that the Seeds of this Kind must be sown every Spring, and managed as hath been directed for the Garden Clary, in the former Volumes of the *Gardeners Dictionary*.

The other Kinds are also propagated by Seeds, which should be sown in March on a Bed of fresh light Earth; and when the Plants are come up, they should be carefully weeded, and thinned where they are too close, leaving them about eight or ten Inches apart; and during the Summer Season they must be kept clear from Weeds, which is the only Culture they will require: The following Michaelmas they should be taken up and transplanted where they are to remain, allowing them at least two Feet of Room; because when they have obtained Strength, they will send forth a great Number of Shoots, and spread pretty much every way. These Plants are preserved in

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Botanic Gardens for the sake of Variety, but are seldom cultivated in other Places.

HOTTONIA, Water-Violet.

The Characters are ;

It hath a rose-shaped Flower consisting of one Leaf, which is divided into two Parts almost to the Bottom ; in the Centre of the Flower arises the Pointal, which afterward becomes a cylindrical Fruit, in which are contained several spherical Seeds.

We have but one Kind of this Plant, viz.

HOTTONIA. Boerb. Ind. alt. Water-Violet.

This Plant is very common in deep standing Waters and Ditches, in several Parts of England. The Leaves of this Plant appear on the Surface of the Water the Beginning of April, and in May the Flowers appear on pretty long naked Stalks, growing in a Spike. These Flowers are of a fine Rose-colour, which, together with their fine cut Leaves make a beautiful Appearance on the Water.

It may be propagated in deep standing Waters, by procuring its Seeds when they are ripe, from the Places of their natural Growth ; which should be immediately dropp'd into the Water where they are designed to grow, and the Spring following they will appear ; and if they are not disturbed, they will soon propagate themselves in great Plenty.

HURA, the Sand Box-tree.

The Characters are ;

It hath a funnel-shaped Flower consisting of one Leaf, which is spread open at the Brim, and slightly cut into twelve Parts : at the Bottom of the Tube is placed the Pointal, which afterward becomes a globular compressed Fruit, which has twelve Cells, in each of which is contained one roundish flat Seed.

We know but of one Sort of this Plant; viz.

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HURA Americana, abutili Indici folio. H. Amst. American Hura, with a Leaf like the Indian Abutilon. This is sometimes called Jamaica Walnuts, and the Sand Box-tree ; and by others, Warnelia and Havelia.

This Shrub is a Native of the Spanish West-Indies, from whence the Seeds have been brought into several Islands in the West-Indies, where the Inhabitants cultivate these Plants in their Gardens by way of Curiosity. It rises to the Height of fourteen or sixteen Feet, and divides towards the Top into several Branches, which are adorned with large Leaves indented on their Edges, and terminating in a Point : these Leaves, as also the younger Branches, are of a deep-green Colour, and are full of a milky Juice, which issues out on their being broken or bruised. The Fruit of this Plant, if suffered to remain on till they are fully ripe, burst in the Heat of the Day with a violent Explosion, making a Noise like the firing of a Pistol, and hereby the Seeds are thrown about to a considerable Distance. These Seeds, when green, vomit and purge, and are supposed to be somewhat a-kin to the Nux Vomica.

The Seeds of this Plant were sent from Carthagena in New Spain, by the late Dr. William Houstoun ; and since, there have been many of the Seeds sent into England from Barbadoes, where there are many of the Plants cultivated in the Gardens of the Curious.

It is propagated by Seeds, which should be sown early in the Spring in Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark, observing to water the Earth frequently ; and if the Nights should prove cold, the Glasses of the Hot-bed must be covered with Mats,
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to preserve a gentle Warmth in the Bed; but when the Days are warm, the Glasses of the Hot-bed should be raised to admit fresh Air, as also to let the Steam of the Bed pass off. If these Rules are duly observed, the Plants will appear in about five Weeks after the Seeds are sown, when they should be carefully cleared from Weeds, and frequently refreshed with Water. As the Plants will advance very fast, where due Care is taken of them, they should have a large Share of fresh Air admitted to them in warm Weather, otherwise they will draw up too weak. When the Plants are about four Inches high, they should be transplanted each into a separate small Pot filled with light rich Earth, and plunged again into the Hot-bed of Tanners Bark, being careful to shade them from the Heat of the Sun, until they have taken new Root; after which time they must have free Air admitted to them, by raising of the Glasses in proportion to the Warmth of the Season, and they should be frequently watered. When the Plants have filled these small Pots with their Roots, they must be shaken out of them, and their Roots trimmed, and then placed in larger Pots; which should be filled with the like rich Earth, and plunged again into the Hot-bed, where they should remain till *Michaelmas*, provided the Plants have room, without touching of the Glasses; at which time they must be removed into the Bark-stove, and plunged in the warmest Part thereof: during the Winter Season they must be often watered; but they must not have it in such Quantities then, as is given to them in Summer; they must also be kept very warm, otherwise they will not live in this Country. In Summer they must have a large Share of fresh Air in warm

Weather, but they must not be removed into the open Air; for they are too tender to live abroad in the warmest Part of the Year in this Country.

There are many of these Plants now growing in the Stoves in *England*, some of which are eight or ten Feet high; but I have seen but one Plant of this Kind in Flower, which was in the Gardens of the Right Honourable Lord *Petre*, at *Ingatestone-Hall* in *Essex*.

As these Plants have ample Leaves, which are of a beautiful green Colour, so they afford an agreeable Variety among other tender Exotic Plants in the Stove; for where they are kept warm, and duly refreshed with Water, they retain their Leaves all the Year in Verdure.

The Fruit of this Plant is, by the Inhabitants of the *West-Indies*, cut open on the Side where the Footstalk grew, and the Seeds carefully taken out, and the Shells are used as a Standish, to contain Sand for Writing; which gave Rise to the Name of Sand-box. When these Fruit are brought intire into *England*, it is very difficult to preserve them; for when the Heat of the Summer comes on, they usually burst with an Explosion, and scatter their Seeds about.

HYDROPHYLLON, Water-Leaf.

The Characters are;

It hath a bell-shaped Flower consisting of one Leaf, and cut into several Segments; from the Bottom-part of the Flower arises the Pointal, which afterward becomes a Fruit, opening in two Parts, inclosing Seeds of the same Shape as the Vessel.

We have but one Sort of this Plant; viz.

HYDROPHYLLON Morini. *Joncq. Hort.* Water-leaf of *Morinus*.

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This Plant is very hardy in respect to Cold, but it should be planted in a moist rich Soil; for if it is planted in a dry warm Soil, it will not live, unless it is constantly watered in dry Weather. It may be propagated by parting of the Roots, which should be done in Autumn, that the Plants may be well rooted before Spring; for otherwise they will require a great deal of Water to preserve them. The Roots should not be parted too small, nor should it be done every Year, for that will weaken them too much; they will thrive very well in a shady Situation, provided it is not under the Drip of Trees. They flower in *June*, but do not perfect Seeds in this Country.

HYPECOON.

We have no *English* Name for this Plant.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross; these are usually divided into three Parts: out of the Flower-cup rises the Pointal, which afterward becomes a plain smooth-jointed Pod, full of kidney-shaped Seeds, which are inclosed in each Joint.

The Species are;

1. *HYPECOON latiore folio. Tourn.* Broad-leav'd Hypecoon.
2. *HYPECOON tenuiore folio. Tourn.* Narrow-leav'd Hypecoon.
3. *HYPECOON orientale, latiore folio, flore magno. Tourn. Cor.* Eastern Hypecoon, with a broader Leaf, and a large Flower.
4. *HYPECOON orientale, fumaria folio. Tourn. Cor.* Eastern Hypecoon, with a Fumitory-leaf.

The first and second Sorts grow plentifully in the South of *France*, in *Spain* and *Italy*; but the third and fourth Sorts were discovered by Dr. *Tournefort* in the *Levant*; from whence he sent their Seeds to the Royal Garden at *Paris*.

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These Plants are all of them annual, and their Seeds should be sown the Beginning of *March*, on a Bed of light fresh Earth, where they are to remain; for they seldom succeed, if they are transplanted. When the Plants are come up, they should be carefully cleared from Weeds; and where they are too close, they must be thinned, leaving them about six or eight Inches apart; after this they will require no other Culture, but to keep them constantly clear from Weeds. In *June* these Plants will flower, and their Seeds will be ripe in *August*.

Sometimes, when the Spring proves very dry, the Seeds will not grow the first Year; but if the Ground is kept clear from Weeds, and not disturbed, the Plants will come up the following Spring. I have known the Seeds of these Plants remain in the Ground two Years, and the Plants have come up the third Spring very well; so that it may be very proper to sow some of their Seeds in Autumn, soon after they are ripe, in a warm Border, where the Plants may come up early the following Spring; and these will be stronger, and more likely to perfect Seeds, than those sown in the Spring; by which Method the Kinds may be preserved.

These Plants are seldom propagated but by those who are curious in Botany, though for the sake of Variety they may have a Place in large Gardens, because they require very little Trouble to cultivate them; and as they take up but little room, they may be intermixed with other small annual Plants in large Borders, where they will make a pretty Appearance.

The Juice of these Plants is of a yellow Colour, resembling that of *Celandine*; and is affirmed by some eminent Physicians, to have the same Effect as *Opium*.

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HYPERICUM, St. Johns-wort.

The *Species* omitted in the former Volumes, are;

1. *HYPERICUM villosum erectum, caule rotundo. Tourn.* Upright hairy St. Johns-wort, with a round Stalk.

2. *HYPERICUM elegantissimum non ramosum, folio lato. J. B.* The most beautiful St. Johns-wort without Branches, and a broad Leaf.

3. *HYPERICUM minus erectum. C. B. P.* Small upright St. John's-wort.

4. *HYPERICUM minus supinum, vel supinum glabrum. C. B. P.* Small smooth trailing St. Johns-wort.

5. *HYPERICUM folio brevior. C. B. P.* Short-leav'd St. Johns-wort.

6. *HYPERICUM crispum, triquetrum & cuspidato folio. Bocc. Mus.* Curl'd St. Johns-wort, with a three-cornered and pointed Leaf.

7. *HYPERICUM perfoliatum & perforatum. Tourn.* Perfoliate and perforated St. Johns-wort.

8. *HYPERICUM amplo perfoliato folio. Tourn.* St. Johns-wort, with a large thorough-wax Leaf.

9. *HYPERICUM Alpinum humilius, magno flore punctato. Tourn.* Dwarf St. Johns-wort of the Alps, with a large spotted Flower.

10. *HYPERICUM latifolium Lusitanicum. Tourn.* Broad-leav'd Portuguese St. Johns-wort.

11. *HYPERICUM Lusitanicum, linariæ folio. Tourn.* Portuguese St. Johns-wort, with a Toad-flax-leaf.

12. *HYPERICUM tomentosum Lusitanicum minimum. Tourn.* The smallest woolly Portuguese St. Johns-wort.

13. *HYPERICUM Creticum supinum, folio subrotundo, flore magno. Tourn. Cor.* Candy trailing St. Johns-wort, with a roundish Leaf, and a large Flower.

14. *HYPERICUM Creticum, am-*

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plissimo folio nitido. Tourn. Cor. Candy St. Johns-wort, with a large shining Leaf.

15. *HYPERICUM villosum, foliis caulem ambientibus acutis, cæteris vero circinatis. Tourn. Cor.* Hairy St. Johns-wort, with pointed Leaves encompassing the Stalk, and the bottom Leaves exactly round.

16. *HYPERICUM orientale, foliis subrotundis auritis, cauli adhaerentibus. Tourn. Cor.* Eastern St. Johns-wort, with roundish eared Leaves adhering to the Stalk.

17. *HYPERICUM orientale, ptarmicæ foliis. Tourn. Cor.* Eastern St. Johns-wort, with Sneezwort-leaves.

18. *HYPERICUM orientale, fastido simile, sed inodorum. Tourn. Cor.* Eastern St. Johns-wort, like the stinking Kind, but without Smell.

19. *HYPERICUM orientale saxatile, majoranæ folio. Tourn. Cor.* Eastern rock St. Johns-wort, with a Marjoram-leaf.

20. *HYPERICUM orientale, androsæmo hirsuto simile, sed glabrum. Tourn. Cor.* Eastern St. Johns-wort, resembling hairy Tutfan, but smooth.

21. *HYPERICUM orientale, polygoni folio. Tourn. Cor.* Eastern St. Johns-wort, with a Knot-grass-leaf.

22. *HYPERICUM orientale, caule aspero purpureo. Tourn. Cor.* Eastern St. Johns-wort, with a rough purple Stalk.

23. *HYPERICUM orientale, caule aspero purpureo, linariæ folio. Tourn. Cor.* Eastern St. Johns-wort, with a rough purple Stalk, and a Toadflax-leaf.

24. *HYPERICUM orientale, rosmarini folio glauco. Tourn. Cor.* Eastern St. Johns-wort, with a sea-green Rosemary-leaf.

25. *HYPERICUM orientale latifolium subhirsutum, caule purpureo villoso. Tourn. Cor.* Broad-leav'd Eastern St. Johns-wort, somewhat hairy, with a purple hairy Stalk.

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The four Sorts first-mentioned are Natives of *England*, growing in Woods and other shady Places in divers Parts. The fifth, sixth, seventh and eighth Sorts, grow in the South of *France*, *Italy*, and *Spain*; yet are hardy enough to endure the Cold of our ordinary Winters very well in the open Air. The ninth Sort grows on the *Alps*; the tenth, eleventh and twelfth Sorts, are Natives of *Portugal*; but all the following Sorts were discovered by Dr. *Tournefort* in the *Levant*.

All these Plants may be propagated by sowing of their Seeds soon after they are ripe, on a Bed of fresh undunged Earth; and when the Plants are come up, they should be kept clear from Weeds; the following Spring they may be transplanted to the Places where they are to remain; after the Plants have taken new Root, they will require no farther Care, but to keep them clear from large Weeds, which, if suffered to grow amongst them, will over-bear and destroy them.

Most of the Kinds being Natives of Woods, and shady Places, will grow very well under the Drip of Trees; so that they may be planted in large Wilderness Quarters, where they will thrive and make a pretty Variety. But it will be proper to keep a few Plants of each Kind in a shady Border, where, if they are permitted to shed their Seeds, they will produce a Supply of young Plants, whereby the Kinds may be preserved: for as some of their Kinds do not continue above two or three Years, so, if there is not Care taken to have a constant Supply of young Plants, their Kinds will be lost; for where the Shade of the Wilderness is very thick, the Seeds which fall there will not succeed; because the Leaves of the Trees

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falling in Autumn, when the Seeds are ripe, cover the Ground; whereby the Seeds either do not reach the Earth, or if they do, they are so closely covered by the falling Leaves, that they cannot enjoy the Benefits of the Air; so that they rarely grow.

HYPOCISTIS.

We have no *English* Name for this Plant.

The Characters are;

It hath a bell shaped Flower consisting of one Leaf, which is cut into several Segments at the Brim: the hinder Part of the Flower becomes a soft Fruit, divided into Rays, in which are contained the Seeds.

The Species are;

1. *HYPOCISTIS Cretica, flore purpureo. Tourn. Cor. Candy Hypocistis, with a purple Flower.*

2. *HYPOCISTIS purpurea, flore candicante. Tourn. Cor. Purple Hypocistis, with a white Flower.*

3. *HYPOCISTIS flore luteo. Tourn. Cor. Hypocistis with a yellow Flower.*

4. *HYPOCISTIS pallescentis coloris, lineis purpurascentibus & nonnihil virescentibus distincta. Clus. Hist. Pale-coloured Hypocistis, with purplish Lines.*

These Plants grow from the Root of the *Cistus*, or Rock-rose, and cannot be cultivated by Art; it being a Superplant, like the Mistletoe; and it is not known to grow on any other Plant but the *Cistus*. But as one of the Species is used in Medicine, I thought it proper to mention the several Kinds which have been discovered.

HYSSOPUS, Hyssop.

The Species omitted in the former Volumes, are;

1. *HYSSOPUS utrinque florida. Dod. pempt. Hyssop bearing Flowers on very Side.*

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2. *HYSSOPUS vulgaris, moschum redolens*. C. B. P. Common Hyssop, smelling like Musk.

3. *HYSSOPUS crispa*. Gesner. Hort. Curled Hyssop.

4. *HYSSOPUS foliis dissectis*. C. B. P. Hyssop with cut Leaves.

5. *HYSSOPUS spica brevi & rotunda*. C. B. P. Hyssop with a short and round Spike.

6. *HYSSOPUS versicolor sive aureus*. Park. Par. Gold-striped Hyssop.

7. *HYSSOPUS hirsuta*. C. B. P. Hairy Hyssop.

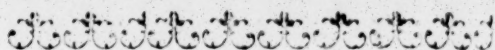
8. *HYSSOPUS hirsuta, flore albo*. Tourn. Hairy Hyssop, with a white Flower.

All these Sorts of Hyssop are very hardy Plants, which will endure the Cold of our Winters in the open Air, provided they are planted in a dry undunged Soil; for when they are planted in a rich Soil, they grow very luxuriant in Summer, and are less able to resist the Cold in Winter: so that when any of these Plants grow out of the Joints of the old Walls, (as they frequently do) they will resist the most severe Frost; and these Plants will be much more aromatic, than those which grow in a rich Soil.

They may be propagated by sowing of their Seeds in the Spring, in the manner which is directed for the common Sort, in the former Volumes of the *Gardeners Dictionary*; with which Management all these Sorts will agree, except the striped Kind; which is no way propagated but by Slips, which should be planted the Beginning of *March*, on a Border of fresh undunged Earth, observing in dry Weather to water them until they have taken Root; after which time they must be kept clear from Weeds, and at *Michaelmas* the Plants should be transplanted where they

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are to remain, which should be on a dry, stony or gravelly Spot of Ground, where they will preserve the Beauty of their variegated Leaves much better than in a good Soil.



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JACEA, Knapweed.

To this Article must be added;
1. *JACEA nigra pratensis latifolia, flore albo*. Tourn. Broad-leav'd meadow Knapweed, with a white Flower.

2. *JACEA nigra pratensis angustifolia*. Narrow-leav'd meadow Knapweed.

3. *JACEA cum squamis ciliis instar pilosis*. J. B. Knapweed with hairy Scales.

4. *JACEA nigra, squamoso capite, major*. C. B. P. Greater black Knapweed, with a scaly Head.

5. *JACEA nigra, squamoso capite, minor*. C. B. P. Smaller black Knapweed, with a scaly Head.

6. *JACEA vulgaris laciniata, flore purpureo*. Tourn. Great Knapweed, or Matfellow.

7. *JACEA vulgaris laciniata, flore albo*. Tourn. Great Knapweed, or Matfellow, with a white Flower.

8. *JACEA latissimo laciniato folio*. C. B. P. Knapweed with a broad jagged Leaf.

9. *JACEA cinerea laciniata, flore purpureo*. Triumph. Jagged ash-coloured Knapweed, with a purple Flower.

10. *JACEA foliis cichoraceis villosis, altissima, flore purpureo*. Tourn. The tallest Knapweed, with hairy succory Leaves, and a purple Flower.

11. *JACEA foliis cichoraceis villosis, altissima, flore albo*. Tourn.

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The tallest Knapweed, with hairy succory Leaves, and a white Flower.

12. *JACEA foliis erucæ lanuginosis.* Tourn. Knapweed with woolly Rocket-leaves.

13. *JACEA foliis candicantibus laciniatis, cauliculis non splendentibus.* Tourn. Knapweed with whitish jagged Leaves, and Empalements not shining.

14. *JACEA foliis laciniatis viridibus, cauliculis argenteis.* Tourn. Knapweed with green jagged Leaves, and silver Empalements

15. *JACEA cauliculis argenteis, minor.* Tourn. Lesser Knapweed, with silver Empalements.

16. *JACEA Alpina, succisæ folio.* Tourn. Mountain Knapweed, with a Devils-bit-leaf.

17. *JACEA folio cerinthes, è Rupe Victoriæ.* Tourn. Knapweed with a Honey-wort-leaf.

18. *JACEA Hispanica latifolia, nervis foliorum lanuginosis.* Bocc. Mus. Broad-leav'd Spanish Knapweed, with the Nerves of the Leaves woolly.

19. *JACEA Cretica aculeata incana.* Tourn. Hoary prickly Knapweed of Crete.

20. *JACEA tomentosa, foliis undulatis.* Tourn. Woolly Knapweed, with waved Leaves.

21. *JACEA Cretica saxatilis, glastii folio.* Tourn. Cor. Rock Knapweed of Candy, with a wood Leaf.

22. *JACEA Cretica laciniata argentea, parvo flore flavesciente.* Tourn. Cor. Silver jagged Candy Knapweed, with a small yellowish Flower.

23. *JACEA Cretica acaulos, cichorii folio.* Tourn. Cor. Candy Knapweed, without a Stalk, and a succory Leaf.

24. *JACEA orientalis acaulos, cichorii folio, flore citrino.* Tourn. Cor.

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Eastern Knapweed, without a Stalk, and a citron-coloured Flower.

25. *JACEA orientalis patula, carthami facie, flore luteo magno.* Tourn. Cor. Spreading Eastern Knapweed, with the Face of Bastard Saffron, and a large yellow Flower.

26. *JACEA orientalis, conyzæ folio, flore magno.* Tourn. Cor. Eastern Knapweed, with a Fleabane-leaf, and a large Flower,

27. *JACEA orientalis, cyani folio, flore parvo, calyce argenteo.* Tourn. Cor. Eastern Knapweed, with a Blue-bottle-leaf, and a small Flower with a silver Empalement.

28. *JACEA orientalis, folio sinuato subtus tomentoso, flore purpureo.* Tourn. Cor. Eastern Knapweed, with a sinuated Leaf, hoary underneath, and a purple Flower.

29. *JACEA orientalis maritima incana, coronopi folio.* Tourn. Cor. Eastern maritime hoary Knapweed, with a Bucks-horn-leaf.

30. *JACEA orientalis perennis, lato coronopi folio, flore purpurascente.* Tourn. Cor. Perennial Eastern Knapweed, with a broad Bucks-horn-leaf, and a purplish Flower.

31. *JACEA orientalis perennis, angustissimo & incano coronopi folio, flore purpurascente.* Tourn. Cor. Perennial Eastern Knapweed, with a very narrow and hoary Bucks-horn-leaf, and a purplish Flower.

32. *JACEA orientalis laciniata incana & moschata.* Tourn. Cor. Hoary musk jagged-leav'd Eastern Knapweed.

33. *JACEA lutea spinosa centaurioides.* C. B. P. Prickly yellow Knapweed, like the greater Centaury.

34. *JACEA latifolia purpurea, capitulo spinoso.* C. B. P. Broad-leav'd purple Knapweed, with a prickly Head.

35. *JACEA spinosa Cretica*, an species *hyosiridis Plinii*. Zan. Prickly Knapweed of Candy, supposed to be a Species of *Hyosiris* of Pliny.

36. *JACEA marina Batica*. Park. Theat. Sea Spanish Knapweed.

37. *JACEA cyanoides altera, caule alato*. Par. Bat. Another Knapweed like Blue-bottle, with a winged Stalk.

38. *JACEA Melitenfis, capitulis conglobatis*. Bocc. Rar. Plant. Knapweed of Malta, with conglobated Heads.

39. *JACEA orientalis annua, coronopi folio, flore luteo*. Tourn. Cor. Annual Eastern Knapweed, with a Bucks-horn-leaf, and a yellow Flower.

40. *JACEA arborefcens, styracis folio*. Tourn. Tree-knapweed, with a Storax-tree-leaf.

41. *JACEA Cretica frutescens, elichrysi folio, flore magno purpurascens*. Tourn. Cor. Shrubby Knapweed of Candy, with a Goldylock-leaf, and a large purplish Flower.

42. *JACEA frutescens, plantaginis folio, flore albo*. Tourn. Cor. Shrubby Knapweed, with a Plantain-leaf, and a white Flower.

43. *JACEA Virginiana, leucoii petrei folio rigido, floribus pulchre purpureis, ad nodos caulium in laxiorem spicam dispositis*. Pluk. Mantiff. Virginian Knapweed, with a stiff Gilliflower-leaf, and fine purple Flowers growing in loose Spikes from the Joints of the Stalks.

44. *JACEA altera non ramosa, tuberosa radice, foliis latioribus, flores ferens pauciores, majores, squamis hiantibus armatos, & pediculis curtis insidentibus*. D. Banist. Another unbranched Virginian tuberose-rooted Knapweed, with broader Leaves, and larger scaly Flowers, growing thinly on short Footstalks.

The first Sort here mentioned, is a

Variety of the common Kind; which differs in the Colour of the Flower; this is sometimes found wild by the Sides of Hedges and Ditches, in low Pasture Ground.

The second Sort is very common by the Path-sides in several Parts of England; but is rarely cultivated in Gardens.

The sixth and seventh Sorts also grow wild in uncultivated Places in divers Parts of England, yet are worthy of a Place in large Gardens; for as they are lasting Plants, which require very little Care to cultivate them, and their Flowers being large, and of a long Continuance, they will afford an agreeable Prospect, in some shady abject Parts of the Garden, or under the Drip of Trees, where few better Plants will thrive.

The third, fourth and fifth Sorts, have been found wild in England; but these are less common than either of the former; but in Holland and Flanders they are very common. These may also be allowed a Place in large Gardens for the sake of Variety, because they will thrive on the poorest Soil, and require no Trouble to cultivate them.

The eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth and twentieth Sorts, are Natives of France, Spain, Italy and Germany; from which Countries they have been procured, and are preserved in some curious Botanic Gardens. These, tho' some of them are Natives of warmer Countries, yet will live in the open Air in England, provided they are planted in a warm, dry, undunged Soil.

The thirty-third, thirty-fourth, thirty-fifth and thirty-sixth Sorts, are also Natives of Spain and Italy; the thirty-third Sort grows erect to the

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the Height of three Feet, and on the Top of the Stalks are produced large yellow Flowers, which appear the Beginning of *June*, and continue in Beauty most part of *July*; therefore it deserves a Place in large Gardens, for the sake of Variety. The thirty-fourth, thirty-fifth and thirty-sixth Sorts, have large Heads and Flowers; which being heavy, and their Stalks but weak, they generally trail on the Ground, unless they are supported by Stakes. These also produce a great Number of Branches, so that they require a large Share of Room, which renders them less valuable.

The twenty-first, twenty-second, twenty-third, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh, twenty-eighth, twenty-ninth, thirtieth, thirty-first and thirty-second Sorts, were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*. These Plants are somewhat more tender than the Sorts before-mentioned; yet they will abide the Cold of our ordinary Winters very well in the open Air, provided they have a dry Soil, and a warm Situation.

All these Sorts may be propagated by Seeds, which should sown in *March*, on a Bed of fresh undunged Earth: when the Plants begin to appear, they must be carefully cleared from Weeds; and as soon as they are fit to transplant, they should be removed and planted in Beds of undunged Earth, at about a Foot Distance every way. These Plants must be watered, and if the Season is hot, they should be shaded until they have taken new Root; after which time they will require no farther Care but to keep 'em clear from Weeds until *Michaelmas* following, when they should be taken up and trans-

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planted where they are designed to remain, the common hardy Sorts under Trees, in Wilderness Quarters, and other abject Parts of the Garden, where they will abide many Years, and only require to be kept clear from the largest Weeds, which will overbear them; but as for lesser Weeds, they will not hurt them: the other Sorts, which are more tender, should be planted in a warmer Situation, and on a lean stony Soil, where they will endure the Cold of our ordinary Winters very well, and afford an agreeable Variety.

The thirty-seventh, thirty-eighth and thirty-ninth Sorts, are annual Plants. The Seeds of these must be sown either in *March*, or the Beginning of *September*. Those which are sown in Autumn will come up, and the Plants will be strong enough to resist the Frost, provided they are planted in a warm Border: these will flower much stronger, and come earlier in the Season, than those sown in the Spring; so that they will always produce good Seeds. But if these autumnal Plants should be destroyed by severe Frost, then some of their Seeds should be sown in *March*, on a Bed of light fresh Earth, where they are designed to remain: for these Plants will not be large enough to transplant till *May*, when the Season is generally warm; therefore it will be difficult to make the Plants take Root, unless they are constantly shaded and watered: so that it is the better Method to sow these Seeds in the Spring on the Borders where they are to remain, and then all the Care required will be to clear them from Weeds, and thin the Plants where they come up too close: but those Plants which come up in Autumn, may be transplanted out the Beginning of *March*; at which time they will soon take Root, and then will

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require no farther Culture but to keep them clear from Weeds. These Plants continue a long time in Flower, especially the thirty-seventh Sort; which renders them worthy of a Place in every large Garden.

The fortieth, forty-first and forty-second Sorts, are shrubby Plants, which rise to the Height of four or five Feet, and their Stems become woody. These are Natives of the *Archipelago*, from whence their Seeds have been sent to several curious Botanic Gardens; but at present they are very rare in *England*. They may be propagated by sowing of their Seeds in *March*, on a warm Border of fresh Earth; and when the Plants are come up, they must be carefully weeded, and in very dry Weather they should be frequently refreshed with Water. When the Plants have acquired Strength enough, they should be carefully taken up, and each transplanted into a separate small Pot filled with fresh light Earth, and then placed in the Shade until they have taken new Root; when they may be removed into an open Situation, where they may remain till *October* following; during which time they must be watered in dry Weather, and kept clear from Weeds; but in Winter they should be sheltered under a Hot-bed Frame, where they should have as much free Air as possible in mild Weather, by taking off the Glasses every Day; but in hard Frosts they must be closely covered with Mats or Straw over the Glasses, to secure them from the Cold. The following Spring a few Plants of each Kind may be shaken out of the Pots, and planted in warm dry Borders, where they will live thro' the Winter, provided the Frost is not very severe; and these Plants will flower much stronger than those

in Pots; but it will be proper to keep two Plants of each Kind in Pots to be sheltered in Winter, for fear those Abroad should be destroyed, that the Kinds may be preserved.

These Plants seldom produce good Seeds in this Country, so that when the Plants are obtained, they may be propagated by Cuttings, which should be planted about the Middle of *June* on a shady Border, where, if they are duly watered, they will take Root in about two Months; but it will be proper to let them remain in the same Border until the Beginning of *September*, when they should be carefully taken up and planted into Pots, and placed in the Shade until they are rooted: then they may be exposed in an open Situation till the Middle or latter End of *October*, when they should be removed into Shelter, and managed as hath been directed for those Plants which are raised from Seeds. In Summer these Plants will flower, when they will afford an agreeable Prospect, if they are placed among other hardy Exotic Plants; and as they are ever-green, they add to the Variety in Winter.

The forty-third and forty-fourth Sorts are Natives of *Virginia*, *Maryland* and *Carolina*, where they grow plentifully in the Woods, and make a beautiful Appearance when they are in Flower. They have large tuberosc Roots, about the Size of small Turneps, from which their Stems arise; and when their Roots are strong, they grow five or six Feet high (especially those of the first Sort). These are beset with long narrow Leaves, growing alternately from the Joints of the Stalk. The upper Part of the Stalk is furnished with fine purple Flowers, which are produced in Spikes from the Wings of the Leaves. When the Roots of

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the first Kind are planted in a moist rich Soil, the Branches of Flowers will be near three Feet long, and make a most beautiful Appearance. These Plants do not flower in this Country until *July*, so that unless the Autumn proves very warm, they will not produce good Seeds.

These Plants may be propagated by Seeds, which should be sown early in the Spring, on a Border of fresh rich Earth, in a warm Situation. The best Method is to sow the Seeds thinly in Drills, about six Inches asunder, covering them about half an Inch thick with light Earth; and when the Plants are come up, they must be constantly kept clear from Weeds; and in dry Weather, if they are regularly watered, it will greatly strengthen the Plants. In this Bed the Plants should remain till the next Spring: therefore when their green Leaves are quite decayed in Autumn, there should be some old Tan spread over the Surface of the Bed about an Inch thick, which will keep out the Frost from the Roots; but if the first Winter should prove very severe, it will be proper to lay some Pease-haulm, or any other light Covering, on the Bed, to prevent the Frost from penetrating of the Ground to the Roots, which may injure them while they are young; tho' when they have obtained Strength, they will endure the Cold extremely well in the full Ground without any Covering.

The Beginning of *March* the Roots may be carefully taken up, and transplanted where they are designed to remain, which should be in a rich Soil, and a moist sheltered Situation; where if they are constantly kept clear from Weeds, and the Ground loosened carefully about the Roots twice a Year, they will thrive extremely well, and the Roots will

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abide many Years. The second Year after they are raised from Seeds, some of the Plants will produce Flowers; but the third Year they will flower very strong, when they will make a fine Appearance, and continue a long time in Beauty; and as there is little Trouble required in their Cultivation, they deserve a Place in every good Garden.

JACOBÆA, Ragwort.

To this Article must be added;

1. JACOBÆA *vulgaris laciniata*. C. B. P. Common Ragwort.
2. JACOBÆA *latifolia palustris, five aquatica*. Raii Hist. Broad-leav'd Marsh Ragwort.
3. JACOBÆA *Alpina, foliis subrotundis serratis*. C. B. P. Roundish sawed-leav'd Ragwort of the Alps.
4. JACOBÆA *Alpina, foliis longioribus serratis*. Tourn. Ragwort of the Alps, with long saw'd Leaves
5. JACOBÆA *montana, betonicae folio*. Barr. Icon. Mountain Ragwort, with a Betony-leaf.
6. JACOBÆA *chrysanthemi Cretici folio glauco*. Tourn. Ragwort with a sea-green Chrysanthemum leaf.
7. JACOBÆA *senecionis folio incano, perennis*. Raii Hist. Perennial hoary Ragwort, with a Groundsel-leaf.
8. JACOBÆA *Pannonica prima*. Clus. Hist. Mountain Ragwort, with an undivided Leaf.
9. JACOBÆA *foliis amplioribus incanis*. Mor. H. R. Blasf. Ragwort with large hoary Leaves.
10. JACOBÆA *maritima, five Cineraria latifolia*. C. B. P. Broad-leav'd Sea Ragwort.
11. JACOBÆA *foliis ferulaceis, flore minore*. Tourn. Ragwort with Fenel-giant Leaves, and a smaller Flower.
12. JACOBÆA *foliis ferulaceis, flore majore*. Tourn. Ragwort with Fenel-

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Fenel-giant Leaves, and a larger Flower.

13. *JACOBÆA Africana, botryos folio. Boerb. Ind. alt. African Ragwort, with an Oak of Jerusalem Leaf.*

14. *JACOBÆA Chia, senecionis folio villosa, flore magno. Tourn. Cor. Ragwort of Chia, with a hoary groundsel Leaf, and a large Flower.*

15. *JACOBÆA Orientalis, senecionis folio tenuissimè diviso, non incano, flore magno. Tourn. Cor. Eastern Ragwort, with a very narrow divided groundsel Leaf, not hoary, and a large Flower.*

16. *JACOBÆA Græca maritima, foliis superne virentibus, inferne incanis. Tourn. Greek Sea Ragwort, with Leaves green on their upper Side, but hoary underneath.*

17. *JACOBÆA Africana frutescens, abrotani folio. Oldenl. Shrubby African Ragwort, with a southernwood Leaf.*

18. *JACOBÆA Africana, absinthii foliis. Oldenl. African Ragwort, with wormwood Leaves.*

19. *JACOBÆA Americana odorata & viscosa, florum radiis brevissimis albis. Houst. Sweet-smelling viscous American Ragwort, with very short white Rays to the Flower.*

The first Sort of this Ragwort here mentioned, is one of the most troublesome Weeds, on poor wet Pasture Lands, and on Commons, in almost every Part of England; therefore is never admitted into Gardens, because where the Seeds are permitted to scatter, the Down which adheres to them, will carry them to a great Distance; so that all the Ground will be filled with the Weeds. The only Method to destroy this Plant in Pastures is, to go over the Land in April, when the Weather is dry, and with a Spaddle

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cut up the Plants by their Roots; and, if the Weather continues dry, they will soon dry up. This Work should also be repeated in August, to cut up such Plants as may have come up since April; and if this be repeated two or three Years, never suffering any of the Plants to stand to flower, it will effectually destroy them.

The second Sort is also a very common Weed on low marshy Lands, where the Water usually stands in Winter. This is also a very troublesome Weed on many Commons, and other Pastures; but may be destroyed in the same manner as the former.

The third, fourth and fifth Sorts, are Natives of the Alps and Pyrenean Mountains, from whence they have been procured, and are preserved in several curious Botanic Gardens, for the sake of Variety. They may be propagated by Seeds, which should be sown in the Spring, on a Bed of fresh Earth; and when the Plants are come up, they should be carefully weeded; and when they are strong enough to be removed, they should be transplanted into a strong loamy Soil, where they will continue many Years, and require no other Culture but to clear them from Weeds.

The sixth, eighth, thirteenth, fourteenth and fifteenth Sorts, are annual Plants, which should be sown in the Spring, on a Bed of light fresh Earth, where they are designed to remain; and when the Plants are come up, they should be thinned where they are too close, and kept clear from Weeds; which is all the Culture they require. In June they will flower, and their Seeds will ripen soon after; which, if permitted to scatter, will furnish a Supply of young Plants where-ever the Seeds fall.

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The seventh and eighth Sorts grow wild in *England*; the seventh is a lasting Plant, which grows under Hedges, and in Woods, in divers Parts of *England*; but the eighth Sort is an annual Plant, which is usually found on dry Hills, in some Counties near *London*.

The tenth Sort differs from the common Sea Ragwort in being much broader leav'd, and not so hoary. This is a lasting Plant, which will endure the Frost in the open Air very well, and may be treated as is directed for the common Sea Ragwort in the former Volumes of the *Gardeners Dictionary*.

The eleventh and twelfth Sorts are also abiding, which may have a Place in large Gardens for the sake of Variety. These Plants have fine cut Leaves, and the Stems grow erect about two Feet high, on the Tops of which the Flowers grow in an Umbel, which are of a fine yellow Colour.

These may be propagated by Seeds, which should be sown the Beginning of *March*, on a Bed of light fresh Earth; and when the Plants come up, they should be carefully cleared from Weeds; and draw out some of the Plants where they are very close together, that those remaining may grow stronger: when the Plants are strong enough to remove, they should be transplanted in a Bed of fresh Earth about six Inches apart, where they may remain till *Michaelmas*, being careful to keep them clear from Weeds; then the Plants may be taken up, and transplanted into large Borders amongst other hardy Plants; where they will flower the following Summer, and make an agreeable Variety.

JASMINOIDES, Bastard Jasmine.

The Characters are ;

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It hath a tubulous bell-shap'd Flower, consisting of one Leaf, which is cut into five short Segments; from the Flower-cup (which is also divided into five Parts) arises the Pointal, fixed like a Nail in the Inner-part of the Flower, which afterwards becomes a round soft Fruit or Berry, in which are twelve or fourteen Seeds.

The Species are ;

1. **JASMINOIDES** *Africanum, jasmini aculeati foliis & facie. Ac. Reg. Scien.* Bastard Jasmine with Leaves and the Face of prickly Jasmine.

2. **JASMINOIDES** *laureolæ folio, flore candido, interdum odorato. Hort. Elth.* Bastard Jasmine with a large laurel Leaf, and a white Flower, which smells sweet in the Day.

3. **JASMINOIDES** *folio pishaminis, flore virescente, noctu odoratissimo. Hort. Elth.* Bastard Jasmine with a pishamin Leaf, and a greenish Flower, which is very sweet in the Night.

4. **JASMINOIDES** *arborescens, nicotianæ folio, flore albo. Houft.* Tree-like Bastard Jasmine, with a tobacco Leaf, and a white Flower.

5. **JASMINOIDES** *aculeatum, salicis folio, flore parvo ex albo purpurascens. Michel. Nov. Gen.* Prickly Bastard Jasmine, with a willow Leaf, and a small Flower of a purplish white Colour.

6. **JASMINOIDES** *aculeatum humile, halimi minoris folio, flore majori violaceo, fructu crassiore, per maturitatem flavescens. Michel. Nov. Gen.* Dwarf prickly bastard Jasmine, with a lesser halimus Leaf, a larger violet-coloured Flower, and a thicker Fruit, which turns yellowish when ripe.

The first and fifth Sorts have been old Inhabitants in the *English* Gardens, and have been generally known by the Name of *Rhamnus* or *Buck-thorn*.

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thorn. They are pretty hardy Shrubs, which in very mild Winters will live Abroad in the open Air ; but in hard Frost they are destroyed where they are not protected : so that they are generally kept in Pots or Tubs, and removed into the Green-house in Winter.

The sixth Sort is more rare in *England* than either of the former, but is very common in *Italy*. This is as hardy as the two former, and may be treated in the same manner.

These Plants may be propagated by Cuttings, which should be planted the Beginning of *May* on a Border of light fresh Earth, observing to water and shade them until they have taken Root, and constantly keep 'em clear from Weeds. When these Cuttings are strongly rooted, (which may be known by their sending forth strong Shoots) they should be carefully taken up with Balls of Earth to their Roots, and planted each into a separate Pot filled with fresh light Earth, and then placed in a shady Situation, until they have taken new Root ; after which time they should be removed into a sheltered Situation, where they may remain with other pretty hardy Exotic Plants, until the Beginning of *November* ; when they should be removed into Shelter, with Bays, Oleanders, and other such hardy Plants, as only require to be sheltered from extreme Frost ; but should have as much free Air as possible in mild Weather.

In Summer these Plants must be plentifully watered in dry Weather, for they are very thirsty ; there should also be Care taken that they do not root thro' the Pots into the Ground, which they are very apt to do, if they are permitted to stand long in a Place unremoved ; so that, when their Roots are torn off by taking of them up, the Leaves are

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apt to fall, and their young Shoots will wither. In Winter these Plants must be frequently watered while they are in the Green-house ; but the Water must not be given to them in so large Quantities at that Season as in Summer.

These Plants may also be propagated by laying down their tender Branches in the Spring of the Year, which, if duly watered, will take Root by Autumn ; when they should be taken off from the old Plants, and planted in Pots, as was directed for the Cuttings. As these Plants shoot very freely, they should be pruned, to reduce them, and keep them in Compass ; otherwise they will grow very rude and unfightly, and their Heads will soon grow too large for their Stems ; they should also be shifted out of the Pots at least once a Year, when their Roots should be well trimmed ; and as their Roots increase in Bulk, they must be put into larger Pots.

The first Sort will flower very freely most part of Summer, and where the Plants are duly water'd, they will often produce ripe Fruit, and flower again in Winter.

But the fifth and sixth Sorts do not flower so kindly in *England*, tho' they shoot most luxuriously, when their Roots are not too much confined.

The second, third and fourth Sorts, are much tenderer Plants than the former, these being Natives of the warmest Parts of *America* : the Seeds of the second Sort I received from the *Spanish West-Indies*, by the Name of *Dama de Dia* ; and the third, by the Name of *Dama de Noche* ; the Flowers of one Sort being very sweet in the Day, and those of the other being sweet in the Night.

The fourth Sort was discovered by Father Plumier in the French Settlements in America, who calls it in his Catalogue, *Jasminum arborescens, nicotianæ folio, flore albo*. But I received the Seeds of this Sort from La Vera Cruz, which were sent me by the late Dr. William Huskisson, who had carefully examined the Flowers and Fruit of this Plant, and accordingly ranged it amongst the Bastard Jasmynes.

These three Sorts may be propagated either by Seeds or Layers; but as they do not produce Seeds in this Country, their Seeds must be procured from the Places of their natural Growth. If they are propagated by Seeds, they should be sown in the Spring in Pots filled with light fresh Earth, covering them about a quarter of an Inch with Mould; then plunge the Pots into a Hot-bed of Tanners Bark, observing to water the Earth as often as it appears dry; for if the Earth is not kept moist and warm, the Seeds will not vegetate; therefore, if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats, to preserve a moderate Heat in the Bed; but in the Day-time, when the Sun shines warm, the Glasses should be raised, to let the Steam of the Bed pass off, as also to admit fresh Air. When the Plants begin to appear, they must be duly watered, and carefully cleared from Weeds, observing to admit fresh Air to them in hot Weather, as also to cover the Glasses every Night, when it is cold, to keep them warm. When the Plants are about three Inches high, they should be shaken out of the Pots carefully, and each transplanted into a separate small Pot filled with light fresh Earth, and then plunged into the Hot-bed again, observing to shade the Plants from

the Heat of the Sun until they have taken new Root; after which time the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants in proportion to the Warmth of the Season; and they must be constantly watered in hot Weather, for they are thirsty Plants. When the Plants are grown so tall as to reach near the Glasses, they should be removed out of the Hot-bed, and plunged into the Bark-bed in the Stove, where they must remain all the Winter; during which Season they must be kept very warm, and must be frequently refreshed with Water. With this Management they will thrive very fast, and the following Summer will produce their Flowers; but they should be constantly kept in the Stove, giving them a larger Share of fresh Air in Summer, as also Plenty of Water; for if they are placed Abroad in Summer, they will not produce their Flowers, nor will their Leaves continue in Beauty; for as the Weather often alters in this Climate, so, whenever it is cold or stormy Weather, these Plants, when exposed thereto, are so much pinched as not to recover their Verdure till after they have been removed into the Stove for some time; and often, when they are much pinched by cold Nights or Winds in Summer, they do not recover till the following Spring.

If you propagate these Plants by Layers, some of their tender Branches should be laid down in April; and if the Pots are at that time placed in a warm Bed of Tanners Bark, it will greatly promote their Rooting, especially if they are duly watered. These Layers will be sufficiently rooted for Transplantation in about three Months after Laying; when they should be raised up, and cut off

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from the old Plants, and each planted into a Pot filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; after which time they may be treated as has been directed for the seedling Plants,

The second Sort may also be propagated by Cuttings, which should be planted in May, in Pots filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Heat of the Sun until they have taken Root, as also to give them Plenty of Water. When the Cuttings are well rooted, they should be each planted into a separate Pot, and managed as the Layers.

JASMINUM, Jasmine.

To this Article must be added;

1. JASMINUM *Malabaricum, foliis mali aurantii, flore niveo odoratissimo. Com.* Jasmine of Malabar, with orange Leaves, and a snow-white very sweet-scented Flower.

2. JASMINUM *Americanum, foliis conjugatis, floribus spicatis albis. Houst.* American Jasmine, with Leaves growing opposite, and white Flowers growing in Spikes.

3. JASMINUM *arborescens, foliis laurinis, flore umbellato. Houst.* Tree-like Jasmine, with bay Leaves, and Flowers growing in an Umbel.

The first of these Jasmines was formerly brought from Malabar in the East-Indies into Italy, where it is now pretty common in the curious Gardens; but in England it is still very rare. The second and third Sorts were discovered by the late Dr. Houstoun at La Vera Cruz in America, from whence he sent Specimens and Seeds of both Kinds to England.

These Plants may be propagated by Seeds or Layers; but as they do

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not produce Seeds in Europe, and they are rarely brought from the Countries of their natural Growth, the only Method of propagating them, is by Layers: these Layers should be laid down early in the Spring, at which time the Pots should be plunged into a moderate Hot-bed of Tanners Bark, observing to water them duly in hot Weather, as also to let them have a good Share of fresh Air. With this Management the Layers will be rooted in three or four Months, fit to transplant; when they should be carefully taken up, and cut off from the old Plants, and each planted into a separate small Pot filled with light rich Earth, and then plunged into the Hot-bed again, observing to water and shade them until they have taken new Root; after which time they may be removed into the Stove, where they should be kept warm during the Winter Season; and they should be frequently refreshed with Water. In Summer they should have a large Share of fresh Air admitted to them in warm Weather, by opening the Glasses of the Stove; but they should never be set Abroad in the open Air, for they are too tender to thrive Abroad in this Climate, even in the hottest Season of the Year. These Plants also require a large Share of Moisture in hot Weather, and their Leaves should be frequently refreshed with Water, and washed with a Sponge, to clear 'em from the Filth, which they are very subject to contract by remaining constantly in the House.

With this Management these Plants will thrive, and produce Plenty of Flowers every Year in July and August; and their Leaves remaining green thro' the Year, they make an agreeable Variety in the Stove, amongst other tender Exotic Plants.

The *Spanish* or *Catalonian* Jasmine, as it is vulgarly called, is a Native of *America*, from whence I suppose it was brought to *Spain*, soon after the *Spaniards* had possessed themselves of the South Continent of *America*, because this Plant is not known to grow wild in any Part of *Europe*; but in many Places in the *Spanish West-Indies*, the Woods are full of it, as I have been informed by Mr. *Robert Millar*, Surgeon, who sent over many Specimens of this Plant from thence.

ICACO, *American Plum*, vulgò.

The Characters are;

It hath a rose-shaped Flower, consisting of several Petals, which are placed in a circular Order; from whose Flower-cup arises the Pointal, which afterward becomes an oval soft fleshy Fruit, inclosing a rough Stone of the same Form, in which is contained a round Kernel.

The Species are;

1. ICACO fructu ex albo rubescente. Plum. Nov. Gen. The Maiden Plum-tree.

2. ICACO fructu nigro. Plum. Nov. Gen. American Plum-tree.

3. ICACO fructu purpureo. Plum. Nov. Gen. Plum-tree with purple Fruit.

4. ICACO fructu luteo. Houst. The yellow Plum-tree.

These Trees are very common in *Jamaica*, *Barbadoes*, and several other Parts of *America*; where the Fruit is esteemed by some of the Inhabitants, but by others it is thought to cause the dry Gripes. They usually grow to the Height of sixteen or eighteen Feet, and the last Sort doth often rise to the Height of thirty Feet, and spreads into a great Number of Branches.

In *Europe* they are preserved with other curious Exotic Plants in the warmest Stoves; for they are too

tender to live through the Winter, unless they are kept very warm. They are commonly propagated by sowing of their Stones, in Pots filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to water them frequently, as also to cover the Glasses of the Hot-bed every Night, to preserve a Warmth in the Bed. When the Plants begin to appear, they must be carefully weeded, and duly watered; and the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants, to prevent their being drawn up too weak. When these Plants are about three or four Inches high, they should be carefully taken up, and each transplanted into a separate Pot, filled with light rich Earth, and then plunged into the Hot-bed again, observing to water them duly, as also to shade them from the Sun, until they have taken new Root; after which time the Glasses of the Hot-bed should be raised every Day to admit fresh Air to the Plants, in proportion to the Heat of the Season: these Plants require a pretty large Quantity of Water in hot Weather, and the Pots must be constantly kept clear from Weeds. In this Hot-bed the Plants may remain until *Michaelmas*, when they should be removed into the Stove, and plunged into the Hot-bed of Tanners Bark, where they may enjoy a good Share of Heat. During the Winter Season the Plants must be frequently watered, but they should not have it in large Quantities, especially in cold Weather, or when they have cast off their Leaves. In Summer they should have a large Share of fresh Air admitted to them in warm Weather, by opening the Glasses of the Stove; but these Plants are too tender to bear the open Air of this Country.

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Country, even in the hottest Season of the Year; so that they should constantly remain in the Stove, and always should be plunged into the 'Tan. As the Plants advance in their Growth, they should be shifted into larger Pots; but they will not require to be transplanted oftener than once a Year, which should always be done the latter End of *March*, or the Beginning of *April*, just before the Plants put out their fresh Leaves.

If these Plants are carefully managed, according to the foregoing Directions, they will thrive very fast, and in three or four Years will produce Fruit, which I have sometimes seen perfectly ripe in *England*; so that they deserve a Place amongst other tender Exotic Plants, as a great Curiosity.

In *America* the Inhabitants propagate these Plants by Truncheons or large Branches, which if cut off and planted in the rainy Seasons, take Root very soon, and in a Year or two become large Plants. They are often planted to make Hedges in *Jamaica* and *Barbadoes*, and are esteemed very proper for that Purpose, being quick in Growth.

The Name *Iceco*, which Father *Plumier* has applied to this Genus, is the *American* Name by which the *Creolians* called the Fruit: but of late Years the *English* have given them the Epithet of Plums, as being, in their Opinion, somewhat near our *European* Plums.

IMPERATORIA, Masterwort.

The Characters are;

It is a Plant with a Rose and umbellated Flower, consisting of several Petals, which are sometimes heart-shaped, and sometimes intire, ranged in a Circle, and resting on the Empalement; which afterward becomes a Fruit, composed of two Seeds, which are plain, almost oval, gently

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breaked and bordered, and generally casting their Cover. To these Marks must be added, that their Leaves are winged, and pretty large.

The Species are;

1. IMPERATORIA major. C. B. P. Common Masterwort.

2. IMPERATORIA Pyrenaica tenuifolia. Tourn. Narrow-leav'd Pyrenean Masterwort.

3. IMPERATORIA Alpina maxima. Tourn. Greatest Masterwort of the the Alps.

The Root of the first Species is used in Medicine; it has a very hot acrid Taste, and is esteemed alexipharmic, sudorific, and a great Attenuater and Opener.

This Sort is cultivated in Gardens to supply the Markets. It may be propagated either by Seeds, or parting of the Roots: if you would propagate it by Seeds, they should be sown in Autumn, soon after they are ripe, on a Bed or Border of light Earth, in a shady Situation; observing not to sow the Seeds too thick, nor should they be covered too deep. In the Spring the Plants will appear, when they should be carefully weeded; and if the Season should prove very dry, they should be now-and-then refreshed with Water, which will greatly promote the Growth of the Plants. Toward the Beginning of *May*, if you find the Plants come up too close together, you should prepare a moist shady Border (and thin the Plants carefully, leaving them about four Inches asunder); and plant those which you draw up, into the Border about six Inches apart every way, being careful to water them duly, if the Season should prove dry, until they have taken Root; after which time, these Plants (as also those remaining in the Seed-beds) will require no other Culture but to keep them clear from Weeds;

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Weeds; which may be easily effected by houghing the Ground between the Plants now-and-then in dry Weather, which will destroy the Weeds, and by stirring of the Ground, will be of great Service to the Plants. The following Autumn, these Plants should be transplanted where they are designed to remain; which should be in a rich moist Soil, and a shady Situation; where they will thrive much better, than if too much exposed to the Sun, or in a dry Soil; for they delight in Shade and Moisture; so that where these are wanting, the Plants will require a constant Supply of Water in dry Weather, otherwise they will thrive but slowly. The Distance which these Plants should be placed, must not be less than twenty Inches, or two Feet every way; for where they like their Situation, they will spread and increase very much. When these Plants are rooted, they will require no other Culture, but to keep them clear from Weeds; and in the Spring before they shoot, the Ground should be every Year gently dug between the Plants; in doing of which great Care should be had, not to cut or bruise their Roots: these Plants, with this Management, will continue several Years, and will produce Seeds in plenty.

If you would propagate these Plants by Off-sets, their Roots should be parted at *Michaelmas*, and planted in a shady Situation, at the same Distance as has been directed for the Seedling Plants, observing to water them until they have taken Root; after which time they must be managed as the Seedlings.

The other two Sorts are preserved in Botanic Gardens for the sake of Variety; but as they are not used in Physic, nor are ornamental Plants, they are seldom allowed a Place in

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other Gardens. These two Sorts may be propagated in the same manner as the former, and are both equally hardy; so that they may be placed in any shady moist cold Situation, where they will thrive very well.

INGA.

This is the *American* Name of the Plant, for which we have no *English* Name at present.

The *Characters* are;

It hath a funnel-shaped Flower, consisting of one Leaf, whose Tube is furbelowed; from the Flower-cup arises the Pointal, fixed like a Nail in the Hinder-part of the Flower, which afterward becomes a soft fleshy Pod; in which are contained many irregular Seeds inclosed in a sweet Pulp.

We know but one *Species* of this Plant; *viz.*

INGA flore albo fimbriato, fructu dulci. Plum. Nov. Gen. Inga with a white furbelowed Flower, and a sweet Fruit.

This Tree is very common on the North Side of the Island of *Jamaica*, at *La Vera Cruz*, and in several other Parts of the *Spanish West-Indies*; where it rises to the Height of sixteen or twenty Feet, and sends forth many crooked straggling Branches, which hang downward, and are covered with a whitish Bark. The Flowers come out at the Ends of the Branches; which are succeeded by the Pods, which are sometimes eaten by the Negroes.

In *Europe* this Plant is preserved by those Persons who are curious in Exotic Plants; it is propagated by Seeds, which should be sown early in the Spring, in Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark, observing frequently to water them; and if the Nights are cold, the Glasses of the Hot-

Hot-bed should be covered as soon as the Sun goes off, in order to preserve a gentle Warmth in the Bed. When the Plants are come up two Inches high, they should be carefully transplanted into separate Pots, filled with light rich Earth, and then plunged into the Hot-bed again, being careful to shade them from the Sun until they have taken new Root; after which time they must be plentifully watered; and in hot Weather the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants, and prevent their being drawn up too weak. At *Michaelmas* these Plants must be removed into the Stove, and plunged into the Tan in the warmest Part of the Bed. During the Winter Season these Plants must be kept very warm, and they must be frequently refreshed with Water; but it must not be given to them in too large Quantities in cold Weather; in the Summer they must be plentifully watered, and in hot Weather they should have a large Share of fresh Air, by opening of the Glasses of the Stove; but they must not be removed out of the Stove, for they are too tender to endure the open Air of this Country, in the warmest Part of the Year. When the Plants have filled the Pots with their Roots, they should be transplanted into larger, and their Roots should be then carefully trimmed: with this Management, the Plants will thrive, and in a few Years produce Flowers, which will add to the Variety amongst other tender Exotic Plants.

JONTHLASPI, Treacle-mustard.

The Characters are;

It hath a Flower consisting of four Leaves, which are placed in form of a Cross; out of whose Flower-cup rises the Pointal, which afterward becomes a Fruit, which is flat, round,

and shaped like a Buckler, having but one Cell, in which is contained a flat round Seed.

The Species are;

1. *JONTHLASPI luteo flore, incanum montanum discoides. Col.* Hoary mountain Treacle-mustard, with a yellow Flower.

2. *JONTHLASPI minimum spicatum lunatum. Col.* The smallest spiked Treacle-mustard.

3. *JONTHLASPI orientale, fructu echinato. Tourn. Cor.* Eastern Treacle-mustard, with a prickly Fruit.

The first Sort is found in Plenty upon the Mountains near the *Tiber*; the second Sort grows wild about *Montpelier*, as also in the Fields near *Nismes*, and other Places in the South of *France*; likewise in *Spain* and *Italy*: but the third Sort was discovered by Dr. *Tournefort* in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*.

All these Plants are annual, and must be sown every Spring, on a Bed or Border of fresh light Earth; and when the Plants are come up, they should be carefully weeded or houghed; and where they are too close, they should be thinned, leaving them about four or five Inches apart; after this they will require no other Care but to keep them clear from Weeds. In *June* they will flower, and their Seeds will ripen in *August*, which, if permitted to scatter, will come up, and stand through the Winter; and these autumnal Plants will flower early the following Spring. All these Sorts should be sown in the Places where they are designed to remain; for they do not succeed, if they are transplanted. They are all very small Plants, seldom rising above four or five Inches high, and do not make any Figure in a Garden; for which Reason they are seldom propagated

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pagated but in Botanic Gardens for the sake of Variety.

IRIS, Flower-de-luce.

The *Species* omitted in the former Volumes, are ;

1. *IRIS hortensis latifolia*. C. B. P. Broad-leav'd garden Flower-de-luce.
2. *IRIS latifolia minor alba, oris cœruleis*. Suvert. Small broad-leav'd Flower-de-luce, with white Flowers, having blue Borders.
3. *IRIS latifolia minor alba, oris dilutè purpureis*. H. R. Par. Lesser broad-leav'd Flower-de-luce, with white Flowers with pale purple Borders.
4. *IRIS Asiatica cœrulea polyanthos*. C. B. P. Many-flowered blue Asiatic Flower-de-luce.
5. *IRIS Asiatica purpurea*. C. B. P. Purple Asiatic Flower-de-luce.
6. *IRIS peregrina subrubens inodora*. C. B. P. Reddish foreign Flower-de-luce, without Smell.
7. *IRIS peregrina, odore oxyanthæ*. C. B. P. Foreign Flower-de-luce, smelling like Hawthorn.
8. *IRIS Byzantina purpureo-cœrulea*. C. B. P. Purple-blue Flower-de-luce of Constantinople.
9. *IRIS Damascena polyanthos*. C. B. P. Many-flowered Flower-de-luce of Damascus.
10. *IRIS latifolia Germanica, odore suavi*. C. B. P. Broad-leav'd German Flower-de-luce, with a sweet Smell.
11. *IRIS latifolia Germanica, odore sambuci*. C. B. P. Broad-leav'd German Flower-de-luce, smelling like Alder.
12. *IRIS latifolia Germanica ochroleucos*. C. B. P. Broad-leav'd German Flower-de-luce, with a yellowish white Flower.
13. *IRIS latifolia Germanica candido-purpurea*. C. B. P. Broad-leav'd whitish purple German Flower-de-luce.

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14. *IRIS latifolia alba viridis*. C. B. P. White and green broad-leav'd Flower-de-luce.

15. *IRIS latifolia candida, caule aphyllis*. C. B. P. Broad-leav'd white Flower-de-luce, with a naked Stalk.

16. *IRIS latifolia Belgica, odore sambuci*. C. B. P. Broad-leav'd Dutch Flower-de-luce, smelling like Alder.

17. *IRIS latifolia Belgica versicolor, odore sambuci*. C. B. P. Broad-leav'd Dutch Flower-de-luce, with a changeable Flower smelling like Alder.

18. *IRIS latifolia Belgica variegata*. C. B. P. Broad-leav'd variegated Dutch Flower-de-luce.

19. *IRIS Belgica cœrulea versicolor*. C. B. P. Blue variegated Dutch Flower-de-luce.

20. *IRIS latifolia humilior purpurea*. C. B. P. Broad-leav'd dwarf purple Flower-de-luce.

21. *IRIS latifolia humilior versicolor*. C. B. P. Broad-leav'd dwarf variegated Flower-de-luce.

22. *IRIS Dalmatica minor*. Clus. Hisp. Small Flower-de-luce of Dalmatia.

23. *IRIS palustris lutea*. Tabern. Icon. Yellow marsh Flower-de-luce.

24. *IRIS palustris pallida*. Raii Syn. Pale water Flower-de-luce.

25. *IRIS pratensis angustifolia humilior*. C. B. P. Lower narrow-leav'd meadow Flower-de-luce.

26. *IRIS angustifolia candida, lineis rubentibus notata*. C. B. P. White narrow-leav'd Flower-de-luce, striped with reddish Lines.

27. *IRIS angustifolia, prunum redolens, minor*. C. B. P. Smaller narrow-leav'd Flower-de-luce, smelling like Plums.

28. *IRIS humilis candicans, venis & orâ cœruleis*. Tourn. Low whitish Flower-de-luce, with blue Veins and Borders.

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29. *IRIS humilis Pyrenaica, foliis repandis è luteo virescentibus. Tourn.* Low Pyrenean Flower-de-luce, whose bending Leaves are of a greenish-yellow Colour.

30. *IRIS humilis, foliis repandis virescentibus, cum lineis cæruleis. Tourn.* Low Flower-de-luce, whose bending Leaves are greenish, with blue Lines.

31. *IRIS humilis, flore rubello. Tourn.* Dwarf Flower-de-luce, with a reddish Flower.

32. *IRIS humilis minor, flore variè picto. Tourn.* Lesser dwarf Flower-de-luce, with a variegated Flower.

33. *IRIS humilis, flore pallido & albo. Tourn.* Dwarf Flower-de-luce, with a pale and white Flower.

34. *IRIS humilis, flore luteo. Tourn.* Dwarf yellow Flower-de-luce.

35. *IRIS humilis, flore pallidè luteo. Tourn.* Dwarf Flower-de-luce, with a pale yellow Flower.

36. *IRIS humilis candicans, venis variis distincta. Tourn.* Dwarf white Flower-de-luce, striped with various Veins.

37. *IRIS humilis saxatilis Gallica. Tourn.* Dwarf rock Flower-de-luce of France.

38. *IRIS humilis latifolia saxatilis Lusitanica. Tourn.* Dwarf broad-leaved rock Flower-de-luce of Portugal.

39. *IRIS humilis latifolia major acaulis. Tourn.* Greater broad-leav'd dwarf Flower-de-luce, without a Stalk.

40. *IRIS humilis orientalis, flore dilutè ianthino & veluti leucophæo. Tourn. Cor.* Dwarf Eastern Flower-de-luce, with a pale violet-coloured, or, as it were, pale whitish Flowers.

41. *IRIS Americana versicolor, stylo non crenato. Hort. Elth.* Party-coloured American Flower-de-luce, whose Style is not crenated.

42. *IRIS Americana versicolor.*

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stylo crenato. Hort. Elth. Party-coloured American Flower-de-luce, with an indented Style.

43. *IRIS Virginiana pumila, five Chamæiris verna angustifolia, flore purpuro-cæruleo odorato. Banist.* Dwarf narrow-leav'd spring Flower-de-luce of Virginia, with a purple-blue sweet-smelling Flower.

44. *IRIS Virginiana pumila, five Chamæiris verna odoratissima latifolia cærulea repens. Banist.* The most sweet-scented dwarf spring Flower-de-luce of Virginia, with broad Leaves and a blue Flower.

The nineteen first-mentioned Sorts have been introduced into some curious Gardens, from Germany, Spain, and the Levant, which are the Countries of their natural Growth. These are all of them hardy Plants, which will thrive in the open Air in this Climate, and require very little Care to cultivate them; and as they afford a great Variety, and continue long in Flower, (especially in a shady Position) they merit a Place in every large Garden. These Sorts usually grow from two to four Feet high in a good Soil; and should be placed amongst hardy Flowers of the same Growth.

The twentieth, twenty-first and twenty-second Sorts, are of lower Growth than either of the former; these seldom rise above a Foot high, but have Leaves as broad as those before-mentioned; but they do not spread so fast by their Roots, nor do they require so much Room. These Sorts flower earlier in the Spring, than the tall growing Kinds; therefore, if some of these Roots are planted in a warm Position, their Flowers will appear in March; and those which have an East Exposure, will succeed these; so that some of them may be continued near two Months in Beauty.

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The twenty-third and twenty-fourth Sorts grow wild in marshy Places in several Parts of *England*; but the twenty-fourth is much less common than the twenty-third, which is found in standing Waters and Ditches almost every-where. The Roots of this Sort are used in Medicine, under the Title of *Acorus adulterinus*, or *false Acorus*. These two Sorts being very common, are seldom allowed a Place in Gardens; but where there happens a Bog, or any low moist Place in a Garden, some of these Plants may be planted to make a Variety.

The twenty-fifth Sort grows wild in moist Meadows in *France* and *Germany*; but is not a Native of this Country. This Sort hath narrow Leaves, and is a much less Plant than either of the former; and may be allowed a Place in shady moist Borders for the sake of Variety, being a very hardy Plant, and requiring very little Care to cultivate them.

The twenty-sixth, twenty-seventh, twenty-eighth, twenty-ninth, thirtieth, thirty-first, thirty-second, thirty-third, thirty-fourth, thirty-fifth, thirty-sixth, thirty-seventh, thirty-eighth, thirty-ninth and fortieth Sorts, are also of humble Growth, seldom rising above eighteen Inches high; these have also narrow Leaves, and do not spread so much as those Sorts before-mentioned; and may be allowed Places in smaller Gardens, because there is a great Variety in their Flowers. They should be planted in an East Border, where the Soil is rather moist than dry; in which Position they will thrive, and produce a great Number of Flowers. The Places of their natural Growth are mentioned to their different Names; from whence their Seeds or Roots may be procured.

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The forty-first, forty-second, forty-third and forty-fourth Sorts, are Natives of *America*, from whence their Seeds and Roots have been sent into *England*: the forty-first and forty-second Sorts were sent from *Maryland*, where their Roots are used in Venereal Cases. These flower late in the Summer, after all the other Sorts are passed, and should be admitted into every curious Garden; for they are as hardy, and require as little Care to cultivate them, as any of the before-mentioned Kinds.

All these Sorts of Flower-de-luce may be propagated by parting of their Roots; the best Season for performing this is at *Michaelmas*, that they may be well rooted before the Frost begins; for if it be delayed till Spring, the Plants will require to be frequently watered, if the Season should prove dry; and they will not flower near so strong, as those which were well rooted before Winter. The dwarf and narrow-leav'd Kinds may be removed and parted every second or third Year; because as these do not spread so fast as the larger Kinds, they may be easily kept within Compass, without being transplanted often. But all the larger Sorts should be either removed and parted every Year, or dug about and reduced; otherwise they will spread so much as to injure such Plants as grow near them: indeed, in such Places where they are planted under Trees in large Wood-work, where they are allowed room enough, they may be permitted to grow many Years unremoved.

These large growing Sorts will thrive very well under Trees in Wilderness Quarters (provided the Shade be not too great); in which Places they will continue a long time in Flower, and make a pretty Variety.

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All the Sorts of Flower-de-luce may be propagated by Seeds; the Method for doing of this being exhibited in the former Volumes of the *Gardeners Dictionary*, I shall not repeat it here.

ISORA, The Screw-tree.

The Characters are;

It hath a spreading anomalous Flower, consisting of one or many Leaves, divided into several Parts, and appearing like two Lips: from the Bottom of the Flower arises the Pointal, whose Apex afterward becomes a twisted Fruit, consisting of many Cells, which are intorted like a Screw; in which are contained several almost kidney-shaped Seeds.

The Species are;

1. ISORA *althææ foliis, fructu breviori & crassiori. Plum. Nov. Gen.* The Screw-tree with marsh-mallow Leaves, and a shorter and thicker Fruit.

2. ISORA *althææ foliis, fructu longiori & angustiori. Plum. Nov. Gen.* The Screw-tree with marsh-mallow Leaves, and a longer and slenderer Fruit.

3. ISORA *althææ folio amplissimo, fructu crassissimo & villoso. Houst.* The Screw-tree with very large marsh-mallow Leaves, and a very thick hairy Fruit.

These Plants are Natives of the East and West-Indies, where they grow to the Height of ten or twelve Feet, and become shrubby. The first of these Sorts I received from the Bahama Islands, where it grows in great Plenty; as also in several other Places in the warm Parts of America. The second Sort was found by Mr. Robert Millar, Surgeon, at Carthage in the Spanish West-Indies, from whence he sent the Seeds to England; from which there have been several Plants raised. The third

Sort was discovered by Dr. William Houstoun in Jamaica, who sent the Seeds and dried Samples of this Kind to England.

All these Plants are propagated by Seeds, which should be sown in Pots, filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, being careful to water the Earth as often as it appears dry; if the Nights prove cold, the Glasses of the Hot-bed should be covered with Mats, to preserve a gentle Warmth in the Bed; but in the Heat of the Day, the Glasses should be raised to let the Steam of the Bed pass off, as also to admit fresh Air. When the Plants begin to appear, they should be gently refreshed with Water three or four times a Week, and the Weeds must be carefully pulled up out of the Pots; otherwise they will soon spread over the young Plants, and destroy them. The Glasses of the Hot-bed must also be tilted every Day when the Weather is warm, to admit fresh Air to the Plants, and prevent their being drawn up too weak; and when they are grown about three Inches high, they should be carefully transplanted, each into a separate small Pot, filled with light rich Earth, and then plunged into the Hot-bed again, observing to shade them until they have taken new Root; after which time the Glasses of the Hot-bed should be raised every Day, in proportion to the Warmth of the Season, to admit fresh Air to the Plants; and they must be frequently watered in hot Weather, for they are thirsty Plants. During the Summer Season these Plants may remain in the Hot-bed (provided they are not so high as to touch the Glasses); but at Michaelmas they should be removed into the Stove, and plunged into the Bark-bed. During

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ring the Winter they should be kept very warm, and they must be often watered; and if their Leaves contract Filth, they should be washed with a Sponge; otherwise Insects will attack them, which will weaken and destroy the Plants.

These Plants are too tender to thrive in the open Air in this Climate, if they are exposed thereto, even in the warmest Season; so that they should constantly remain in the Stove, observing in very hot Weather to open the Glasses of the Stove, to admit fresh Air to the Plants, and to give them plenty of Water; as also to shift them into larger Pots, as they increase in Magnitude. With this Management the Plants will thrive very well, and in two Years, from Seed, will produce their Flowers and Fruits.

The Name *Isoira*, which Father *Plumier* has given to this Genus, is the *Indian* Name for the Plant; but by the *English* Inhabitants in *America*, it is called Screw-tree, from the Form of the Fruit, which is twilled like a Screw.

JUNCUS, Rush.

The Characters are;

It hath a Flower composed of many Leaves, which are placed orbicularly, and expand in form of a Rose; from the Centre of which rises the Pointal, which afterward becomes a Fruit or Husk, which is generally three-cornered, opening into three Parts, and full of roundish Seeds.

The Species are;

1. JUNCUS *acutus, capitulis sorghi*. C. B. P. Prickly large Sea Rush.

2. JUNCUS *acutus maritimus Anglicus*. Park. English Sea prickly Rush.

3. JUNCUS *acutus, paniculâ sparsâ*. C. B. P. Common hard Rush.

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4. JUNCUS *lævis, paniculâ sparsâ, major*. C. B. P. Common soft Rush.

5. JUNCUS *lævis, paniculâ non sparsâ*. C. B. P. Soft Rush, with a more compact Panicle.

6. JUNCUS *acuminé reflexo, major*. C. B. P. The greater bending Rush.

These Sorts of Rushes are not cultivated, but grow wild in several Parts of *England*; and some Sorts of them are very troublesome Weeds, in low moist strong Lands. The first and second Sorts grow on the Sea-shores, where they are frequently watered by the salt Water. These two Sorts are planted with great Care on the Banks of the Sea in *Holland*, in order to prevent the Water from washing away the Earth; which being very loose, would be in Danger of removing every Tide, if it were not for the Roots of these Rushes; which fasten themselves very deep in the Ground, and mat themselves near the Surface, so as to hold the Earth closely together. Therefore, whenever the Roots of these Rushes are destroyed, the Inhabitants immediately repair them, to prevent farther Damage. In the Summer-time, when the Rushes are fully grown, the Inhabitants cut them, and tie them up into Bundles, which are dried, and afterward carried into the larger Towns and Cities, where they are wrought into Baskets, and several other useful things, which are frequently sent into *England*. These Sorts do not grow so strong in *England* as they do on the *Maese*, and some other Places in *Holland*, where I have seen them upward of four Feet high.

The third and fourth Sorts grow on moist strong uncultivated Lands in most Parts of *England*, and destroy the Herbage where they are suffered to remain. The best Method

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of destroying these Rushes, is to pare them up clean in *July*; and after having let them lie a Fortnight or three Weeks to dry, to lay them in Heaps, and burn them gently; and the Ashes which these afford, will be good Manure for the Land; but in order to prevent their growing again, and to make the Pasture good, the Land should be drained and well ploughed, and sown with Rye-grass, which will make a good Sward in one Year, if it be rightly managed; for the right ordering of which you are desired to turn to the Article *Pasture*, where there are proper Instructions exhibited.

JUNIPERUS, Juniper.

To this *Article* must be added;

1. JUNIPERUS *minor montana, folio latiore, fructuque longiore. C. B. P.* Lesser mountain Juniper, with a broader Leaf, and a longer Fruit.

2. JUNIPERUS *major, baccâ cæruleâ. C. B. P.* Greater Juniper, with a blue Berry.

3. JUNIPERUS *major, baccâ rufescente. C. B. P.* Great Juniper, with a reddish Berry.

4. JUNIPERUS *Cretica, ligno odoratissimo, καὶ ὡς Græcorum recentiorum. Tourn. Cor.* Juniper of Crete, with a sweet-scented Wood; which is the Cedar of the modern Greeks.

5. JUNIPERUS *latifolia arborea, cerasif fructu. Tourn. Cor.* Broad-leav'd Eastern Tree Juniper, with a cherry-shaped Fruit.

6. JUNIPERUS *orientalis, vulgari similis, magno fructu nigro. Tourn. Cor.* Eastern Juniper, like the common Sort, with a large black Fruit.

The first Sort here mentioned, grows in great Plenty in the *Alps*, and also on the Hills in *Germany*. The second Sort grows wild in the *Pyrenean Mountains*, and also on

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some Hills in the South of *France*. The third Sort grows plentifully in *Spain*, from whence the Berries have been brought to *England*, and many Plants have been raised. The fourth, fifth and sixth Sorts, were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent their Berries to the Royal Garden at *Paris*. The fourth Sort hath a sweet-scented Wood, somewhat like that of *Bermudas*, and is by the modern *Greeks* called Cedar.

All these Sorts may be propagated by sowing of their Berries early in the Spring, on Borders of light fresh Earth, which are exposed to the Morning Sun, covering them about half an Inch thick with light Earth. These Berries will remain in the Ground one whole Year, so that during that time the Ground should be kept clear from Weeds, and in very dry Weather the Borders should be now-and-then watered. The following Spring the Plants will begin to appear, when they must be kept very clear from Weeds, and in dry Weather they should be duly watered. With this Management the Plants will make a considerable Advance the first Season, so that they will be fit to transplant the following Spring; when you should prepare some Beds of fresh Earth in a sheltered Situation, into which the Plants must be removed just before they begin to shoot, and planted about a Foot asunder every way. In doing of this, great Care should be taken not to break or tear the Roots of the Plants, and also to plant them as soon as possible; for if they remain but two or three Hours out of the Ground, their Roots will dry, and the Plants rarely survive their Removal. This Work should also be done in moist or cloudy Weather, when the Air is soft; for

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if it is done when the dry easterly Winds reign, the Plants seldom thrive. When they are planted, the Surface of the Ground about their Roots should be covered with Mulch, to prevent the Sun and Wind from penetrating the Earth to their Roots, which, if not prevented, will destroy the Plants. In dry Weather they should be now-and-then gently watered, but they should by no means have too great Quantity of Moisture; for that will rot their tender Fibres, and destroy the Plants.

In these Beds the Plants should remain two Years, during which time the Ground should be kept constantly clear from Weeds; and the Spring after transplanting, the Ground should be gently dug, to loosen it, being careful not to expose the Roots of the Plants to the Air. And at the two Years End, they may be removed to the Places where they are designed to remain, provided the Ground is ready; but if the Plantation is not laid out, then the Plants should be removed into a Nursery, for a Year or two longer, placing them in Rows three Feet apart, and the Plants two Feet asunder in the Rows. This should also be done in the Spring, just before they begin to shoot; and the same Care should be had to mulch their Roots as before, as also to do the Work in moist and cloudy Weather. When the Plants have taken Root either in the Nursery, or in the Plantation where they are designed to remain, they will require no other Care but to keep them clear from Weeds, until the Plants are grown strong enough to bear down the Weeds, and keep them under.

The second, third and fourth Sorts, rise to a great Height, and will grow to a pretty large Size; wherefore these

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should be planted amongst other Ever-green-trees of the same Growth, where they will afford an agreeable Variety; for they are naturally disposed to grow in a pyramidal Form, somewhat like the Cypress; and may be planted round Buildings, where they will make a fine Appearance. They are all of them hardy enough to resist the Cold of our Winters, and will grow on stony cold Lands.

The other Sorts are of humbler Growth, and may be planted amongst lower ever-green Shrubs, in Front of the larger Trees, where they may be placed so as to render them very beautiful, and greatly to add to the Variety. The first Sort seldom rises above a Foot high; but the others will grow to the Height of five or six Feet, and have nearly the same Appearance with our common Juniper.

JUSTICIA.

This Plant was so named by the late Dr. *Houftoun*, in Honour to *James Justice*, Esq; a great Lover and Encourager of Gardening and Botany.

The Characters are;

It hath an anomalous Flower, consisting of one Leaf, which is divided into two Lips almost to the Bottom, the under one being for the most part intire, but the upper Lip is divided into two; the Flowers are succeeded by inverted spear-shaped Fruit, which have one Cell, containing many flat Seeds.

The Species are;

1. *JUSTICIA annua, hexangulæ caule, foliis circææ conjugatis, flore miniato.* *Houft.* Annual Justicia, with an hexangular Stalk, Inchanters Night-shade Leaves growing opposite, and a carmine Flower.

2. *JUSTICIA frutescens, floribus spicatis majoribus, uno versu dispositis.* *Houft.* Shrubby Justicia, with larger

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Flowers growing in Spikes, appearing on one Side of the Stalk.

These two Plants were discovered by the late Dr. *Houftoun*, at *La Vera Cruz*, from whence he sent the Seeds and Specimens to *England*. The first Sort grows about two or three Feet high, and perishes soon after the Seeds are ripe; but the second Sort grows to the Height of six or seven Feet, and divides into many Branches, which become woody; at the End of the Branches the Flowers are produced in Spikes, which are of a carmine Colour.

These Plants may be propagated by Seeds, which should be sown early in the Spring in small Pots filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water the Earth gently as it appears dry, and also to cover the Glasses of the Hot-bed every Night, to preserve a kindly Warmth in the Bed. When the Plants begin to appear, the Weeds should be carefully pulled out of the Pots, and the Glasses of the Hot-bed should be raised every Day when the Weather is warm, to admit fresh Air to the Plants; but if the Nights are cold, the Glasses should be duly covered with Mats soon after the Sun is gone off from the Bed. The Plants must also be frequently watered in warm Weather; but it should not be given to them in large Quantities while the Plants are young, because they are then very tender, and subject to rot at the Bottom of their Stems, with much Moisture.

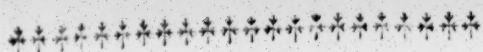
When the Plants are about two Inches high, they should be carefully taken up, and each transplanted into a separate small Pot filled with light fresh Earth, and then plunged into

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the Hot-bed again, being careful to water and shade the Plants until they have taken new Root; after which time they should have Air admitted to them every Day, in proportion to the Warmth of the Season, and they should be duly watered every Day in hot Weather.

As the Plants advance in their Growth, they should be shifted into larger Pots; for if their Roots are too much confined, the Plants will not make any considerable Progress; but they should not be over-potted, because that will be of worse Consequence than under-potting of them; for when they are planted in very large Pots, they will starve and decay, without producing any Flowers. These Plants are too tender to endure the open Air in this Country; therefore they should always remain in the Hot-bed, being careful to let them have a due Proportion of Air in hot Weather: and the annual Sort should be brought forward as fast as possible in the Spring, that the Plants may flower early, otherwise they will not produce good Seeds in *England*.

The second Sort should remain in the Hot-bed during the Summer Season (provided there be room under the Glasses, without being scorched; but at *Michaelmas*, they should be removed into the Stove, and plunged into the Bark-bed; where they must remain during the Winter Season, observing to keep them warm, as also to water them gently two or three times a Week, according as they shall require. The following Summer these Plants will flower, and will abide several Years; but they rarely produce good Seeds in *Europe*.



KALI, Glasswort.

The Characters are ;

It hath a Flower consisting of many Leaves, which are placed in a Circle, and expand in form of a Rose : out of the middle of which rises the Pointal, which afterward becomes an almost globular membranaceous Fruit, containing one single Seed, which is twisted like a Periwinkle, and generally infolded in the Leaves of the Flower.

The Species are ;

1. KALI majus, cochleato semine. C. B. P. Snail-seeded Glasswort.

2. KALI spinosum, foliis longioribus & angustioribus. Tourn. Prickly Glasswort, with longer and narrower Leaves.

3. KALI spinosum, foliis crassioribus & brevioribus. Tourn. Prickly Glasswort, with thicker and shorter Leaves.

4. KALI Siculum lignosum, floribus membranaceis. Bocc. Rar. Plant. Sicilian ligneous Glasswort, with membranaceous Flowers.

5. KALI fruticosum Hispanicum, tamarisci folio. Tourn. Shrubby Spanish Glasswort, with a Tamarisk-leaf.

6. KALI fruticosum Hispanicum, geniste fronde. Tourn. Shrubby Spanish Glasswort, with Broom-tops.

7. KALI fruticosum Hispanicum, capillaceo folio villoso. Tourn. Shrubby Spanish Glasswort, with a hairy and downy Leaf.

8. KALI foliis longioribus & angustioribus subhirsutis. Tourn. Glasswort with longer and narrower somewhat hairy Leaves.

9. KALI orientale fruticosum spinosum, camphoratæ folio. Tourn. Cor.

Eastern shrubby prickly Glasswort, with a sinking ground-pine Leaf.

10. KALI orientale fruticosum, flore maximo albido. Tourn. Cor. Eastern shrubby Glasswort, with a very large whitish Flower.

11. KALI orientale fruticosum, foliis sedi minoris, flore purpureo. Tourn. Cor. Eastern shrubby Glasswort, with Leaves like the lesser Houseleek, and a purple Flower.

12. KALI orientale fruticosum altissimum, florum staminibus purpureis. Tourn. Cor. The tallest shrubby Eastern Glasswort, with Flowers having purple Stamina.

13. KALI orientale fruticosum lanuginosum. Tourn. Cor. Woolly Eastern shrubby Glasswort.

14. KALI orientale fruticosum, linariæ folio. Tourn. Cor. Eastern shrubby Glasswort, with a toad-flax Leaf.

15. KALI orientale fruticosum, flore magno purpureo. Tourn. Cor. Shrubby Eastern Glasswort, with a large purple Flower.

16. KALI orientale fruticosum, floribus albis. Tourn. Cor. Shrubby Eastern Glasswort, with white Flowers.

17. KALI orientale spinosum subhirsutum, tenuissimo folio. Tourn. Cor. Prickly Eastern hairy Glasswort, with a very narrow Leaf.

18. KALI orientale, capillaceo folio, flore purpurascente. Tourn. Cor. Eastern Glasswort, with a capillaceous Leaf, and a purplish Flower.

The first Sort here mentioned grows wild in the Mediterranean in several Places, where it is gathered for the making Sode, which is a sort of Pot-ash used in the making of Soap. It is also cultivated in the South of France, in salt Marshes, for the same Purpose. This Plant seldom grows large, unless it is cultivated, which greatly improves its

Size, so that it often grows from two to three Feet high, and divides into many Branches, whereas in the natural Places of its Growth, it is seldom above a Foot high. The *Spaniards* also cultivate several of the Species here mentioned, in order to make Sode thereof, the best of which is brought from *Alicant* and *Carthagena*. I believe most of the Sorts may be used indifferently for the making Pot-ash; for in the several Countries, from whence we have the Pot-ash, it is made of different Sorts. But the best Pot-ash is that which comes from the *Levant*, which is called *Barillia*: the Salt of these Ashes is clear and white, and is used in making of the finest Glass, and the hardest Soap. But this is made of a different Plant from any of this Genus, and is before-mentioned under the Article *Ficoides*.

The Inhabitants of those warmer Countries, who cultivate these Plants, sow their Seeds early in the Spring, on low marshy Grounds near the Sea, or on salt Ponds, where the Plants soon come up, and in about three Months will be fit to cut for Use; when they mow it down, and dry it after the manner of Hay. When it is well dried, they dig Holes or Pits, in the nature of Lime-kilns; then they set Fire to a Bundle of the Herb, which they throw into the Pit; and after that they throw three or four more Bundles into the Pit, which they suffer to be well lighted; then they fill the Pit with the dried Herb, and stop the Top of it up, leaving it to consume for some time, and be reduced to Ashes. When they open the Pit, they find the Salt incorporated into a solid Rock, which they are obliged to break, and raise up as Stones out of a Quarry.

There are some Sorts of Pot-ash, which are made of many Kinds of

Sea-weeds; but these are very little esteemed; they may be easily known by their dark Colour, and fetid Scent, as also by their Moisture.

The third and fourth Sorts of Glaßwort grow at a greater Distance from the Sea: these are frequently preserved in Botanic Gardens for Variety, as are some of the other Species, though there are not many Kinds which will perfect their Seeds in *England*. All the Kinds are propagated by Seeds, which should be sown the Beginning of *March*, on a Bed of fresh light Earth in an open Situation; and when the Plants come up, the Weeds should be carefully drawn out from amongst them; and where the Plants are too close, they should be thinned, so as to leave them about six or eight Inches asunder every way: as the Plants advance, they should be kept clear from Weeds; and the last time of thinning of the Plants, they should be left a Foot asunder, which will be sufficient room for any of the Sorts to grow to Maturity. These Plants flower in *July* and *August*, and if the Autumn proves warm, some of the Sorts will produce ripe Seeds about *Michaelmas*.

As these Plants do not bear transplanting, so where they are cultivated for Use, the best Method will be to hough the Plants soon after they come up, as is practised for Turneps, Carrots, and several other esculent Plants, which will destroy the Weeds, when it is carefully performed in dry Weather; and by stirring of the Ground between the Plants, it will occasion their growing much larger than where this is not practised. But as our Seasons in *England* are seldom warm enough to bring these Plants to Perfection, they are not worth the Trouble of cultivating here. In some of the *English* Colo-

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nies in *America*, this Commodity may pay the Inhabitants very well, if they would cultivate it; but then I should advise the sowing the Barillia only, which is the most valuable Kind.

KARATAS, The Penguin or wild Ananas.

The Characters are;

It hath a tubulous bell-shaped Flower, which is divided into three Parts at the Mouth; from whose Calyx arises the Pointal, fixed like a Nail in the hinder Part of the Flower; which afterward becomes a fleshy almost conical Fruit, which is divided by Membranes into three Cells, which are full of oblong Seeds.

There is but one Sort of this Plant at present known; which is,

KARATAS *foliis altissimis angustissimis & aculeatis. Plum. Nov. Gen.* The wild Ananas or Penguin.

Father Plumier has made a great Mistake in the Figure and Description of the Characters of this Plant, and the Caraguata; for he has joined the Flower of the Caraguata to the Fruit of the Karatas, and *vice versa*.

This Plant is very common in the *West-Indies*, where the Juice of its Fruit is often put into Punch, being of a sharp acid Flavour. There is also a Wine made of the Juice of this Fruit, which is very strong; but it will not keep good very long, and is only for present Use. This Wine is very intoxicating, and heats the Blood; therefore should be drank very sparingly.

In *England* this Plant is preserved as a Curiosity; for the Fruit seldom arrives to any Degree of Perfection in this Country; and if it were to ripen as thoroughly here, as in its native Country, it would be little valued on account of its great Austerity; which will often take the Skin off from the Mouths and Throats of

those People, who eat it incautiously.

This Plant is propagated by Seeds; for though there are often Suckers sent forth from old Plants, yet they coming between the Leaves, are so long, slender, and ill-shapen, that if they are planted, they seldom make regular Plants. These Seeds should be sown early in the Spring, in small Pots filled with rich light Earth, and plunged into a Hot-bed of Tanners Bark, observing, if the Nights should prove cold, to cover the Glasses with Mats, to keep the Bed in a due Temper of Heat; as also gently to water the Earth, as often as it appears dry. When the Plants are come up, they should be carefully cleared from Weeds; and in the Day-time the Glasses of the Hot-bed should be raised, to admit fresh Air to the Plants, that they may not draw up too weak; they must also be frequently refreshed with Water. When the Plants are strong enough to transplant, they should be carefully taken up, each planted into a separate Pot, filled with light rich Earth, and plunged into the Hot-bed again, observing to refresh them frequently with Water, until they have taken new Root; after which time they should have Air and Water in proportion to the Warmth of the Season. In this Bed the Plants may remain till *Michaelmas*, at which time they should be removed into the Stove, and plunged into the Bark-bed, where they should be treated in the same manner as the Ananas.

These Plants will not produce their Fruit in *England*, until they are three or four Years old; and should be shifted into larger Pots, as the Plants advance in their Growth; for if their Roots are too much confined, they will make but little Progress. They should also be placed at a pretty great Distance from each other; for

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their Leaves will be three or four Feet long, which turning downward, occupy a large Space.

KARSJULA *Kalengu Hort. Mal. Tom. 11. P. 81.*

The Roots of this Plant were brought from *China* by Mr. *Duboise*, which have succeeded very well in several Gardens, and have been propagated so as to furnish other Countries with the Plant. The Name here assigned is *Malabar*, where the Plant grows in great Plenty, and the Roots are much used in Medicine. This Plant is also very common in *Persia*, where it is called *Wanboom*: the Inhabitants of that Country use the Roots for discharging of Wind, and for hypochondriac Disorders.

It is propagated by parting of the Roots; the best time for this Work is in *March*, just before the new Leaves are put out; for the Leaves decay in the Winter, and the Roots send forth new Leaves the Beginning of *April*. These Roots should be planted in small Pots filled with fresh light Earth, and plunged into the Bark-bed in the Stove, where they must be kept warm; but in the Day-time, when the Sun is hot, there should be free Air admitted to the Plants by opening some of the Glasses of the Stove. During the time that the Roots are destitute of Leaves, they must be watered sparingly, because too much Moisture would then rot them; but when they have put out their Leaves, they must be frequently refreshed with Water, especially in hot Weather. These Plants must constantly remain in the Bark-stove; for if the Pots are taken out of the Tan, and placed on Shelves in the dry Stove, the Roots will be apt to shrink in the Winter, which will cause them to rot; as is also the Case of Ginger, to which these Roots have some Analogy in their Consistence and Flavour.

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The Leaves of this Plant arise from the Root, having very short Foot-stalks, and spread near the Surface of the Ground: these Leaves are broad, roundish and concave, having several longitudinal Veins or Ribs, somewhat like those of the broad-leav'd Plantain. Between these Leaves are produced the Flowers, which arise singly from the Root, having no visible Foot-stalk; these are composed of one Leaf, which is divided into several irregular Parts, somewhat resembling the Flowers of some Sorts of *Satyrium*; are of a whitish Colour spotted with purple, and a yellow Bottom. These Flowers are of a short Duration, seldom continuing above twenty-four Hours before they decay; but are succeeded by new Flowers from the same Root, for a considerable time. This Plant usually flowers in *July* and *August*, but is not succeeded by any Fruit or Seed in this Country: it is preserved by some curious Persons for the sake of Variety; and as it requires but little Room in the Stove, it deserves a Place in every Garden where tender Exotic Plants are preserved, especially as it needs no great Care in its Cultivation, and may be propagated in Plenty.

The Root of this Plant is composed of several Tubers about the Size of Hazel-nuts, from which there are several fleshy thick Fibres produced, like to those of the Ginger-root, and every Part of the Plant is warm and aromatic.

KEMPFERA.

This Plant was so named by the late Dr. *Houssoun*, in Honour to the Memory of Dr. *Kempfer*, a learned Botanist.

The Characters are;

It hath an anomalous Flower consisting of one Leaf, and divided at the Brim into five Parts: after the Flower

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Flower is parted, the Pointal becomes a hard Fruit, which is divided into four Cells, which are full of small Seeds.

We know but one Sort of this Plant; viz.

KEMPFERA frutescens, chamaedryos folio, floribus spicatis caeruleis. Houst. Shrubby Kempfer, with a Germander-leaf, and blue Flowers growing in a Spike. This Plant is figured and described in the *Paradisus Batavus*, under the Title of *Veronica similis fruticosa Curassavica, leucarii foliis, flore galericulato.*

It is very common in *Jamaica*, and several other Islands in the *West-Indies*, where it grows to the Height of three or four Feet, and becomes woody. The Flowers are produced in Spikes at the Extremity of the Branches, which are of a fine blue Colour.

This Plant is propagated by Seeds, which should be sown early in the Spring in Pots filled with light rich Earth, which must be plunged into a Hot-bed of Tanners Bark, where it must be kept warm, and frequently refreshed with Water. In about five Weeks the Plants will begin to appear, when they must be carefully cleared from Weeds, and duly watered; but this must be done very gently, because the Plants are very tender while they are young. In the middle of the Day, the Glasses of the Hot-bed should be raised to admit fresh Air to the Plants, to prevent their drawing up too weak; but if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats, soon after the Sun is gone off the Bed, to keep it in a due Temperature of Warmth. When the Plants have obtained sufficient Strength to transplant, they should be carefully turned out of the Seed-pots, and parted, placing each

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into a separate small Pot, filled with light rich Earth, and then plunged into the Hot-bed again, observing to water them pretty well to settle the Earth to their Roots, as also to cover the Glasses every Day with Mats, to screen the Plants from the Sun, until they have taken new Root; after which time they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season; and they must be frequently watered in hot Weather, for they naturally grow on moist Places.

In this Hot-bed the Plants may remain during the Summer Season; but at *Michaelmas*, they should be removed into the Stove, and plunged into the Bark-bed, where they must be kept very warm during the Winter Season, for they are very impatient of Cold; they should also be frequently refreshed with Water, but must be given to them in small Quantities during the cold Weather; for they are very subject to rot with too much Moisture at that Season. In the Spring of the Year the Plants may be removed into a fresh Hot-bed of Tanners Bark, which will greatly forward their Growth; but there should be great Care that the Bed is not too hot, lest it scorches their Roots. If the Plants thrive well the first Season, they will flower the second Summer; but they seldom produce good Seeds in this Country, however the Plants may be maintained several Years, with proper Care.

KETMIA.

To this Article must be added;

1. *KETMIA Indica, folio hastato, fructu duro. Tourn.* Indian Ketmia, with a spear-shaped Leaf, and a hard Fruit.

2. *KETMIA Aegyptiaca, vitis folio, parvo flore. Tourn.* Egyptian Ketmia, with a Vine-leaf, and a small Flower.

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3. KETMIA *Americana aculeata, flore amplissimo coccineo. Plum. Cat.* Prickly American Ketmia, with a very large scarlet Flower.

4. KETMIA *Americana, amplissimo folio cordiformi, flore vario. Plum. Cat.* American Ketmia, with a very large heart-shaped Leaf, and a variable Flower.

5. KETMIA *Americana frutescens, mori folio, flore purpureo. Plum. Cat.* American shrubby Ketmia, with a mulberry Leaf, and a purple Flower.

6. KETMIA *Americana, amplissimo folio angulato, fructu hispido clypeato. Plum. Cat.* American Ketmia, with a large angular Leaf, and a rough Fruit shaped like a Shield.

7. KETMIA *Indica, tiliae folio. Plum. Cat.* Indian Ketmia, with a lime-tree Leaf, commonly called the Mangrove-tree in America.

8. KETMIA *Indica, folio angusto, longissimo & crenato, flore phæniceo. Indian Ketmia, with a narrow very long crenated Leaf, and scarlet Flower.*

9. KETMIA *Indica humilis, folio dissecto aspero, flore parvo candido, instar jasmini Hispanici explicato, fundo purpurascente. Breyn.* Low Indian Ketmia, with a rough cut Leaf, and a small white Flower, which when open, is like the Flower of Spanish Jasmine, having a purple Bottom.

10. KETMIA *Indica humilis, folio dissecto, flore parvo purpureo.* Low Indian Ketmia, with a cut Leaf, and a small purple Flower.

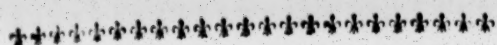
All these Sorts of Ketmia are tender Plants, being Natives of the warmest Climates; the eight first-mentioned Sorts will abide two or

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three Years, provided they are kept in a warm Stove in Winter, though all of them will produce Flowers and good Seeds the first Season, (provided they are brought forward early in the Spring) except the seventh Sort, which grows to the Height of fifteen or sixteen Feet, and seldom flowers in its native Country until the second or third Year. The ninth and tenth Sorts are annual Plants, which perish soon after they have perfected their Seeds.

These Plants are propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up two Inches high, they should be each transplanted into a separate small Pot, filled with light rich Earth, and plunged into the Hot-bed again, observing to water and shade them until they have taken new Root: after which time they should have a large Share of fresh Air in warm Weather, and must be frequently watered. As the Plants advance in their Growth, they should be shifted into larger Pots, and brought forward in Hot-beds after the manner directed for Amaranths; by which Method they may be brought to flower in July, and their Seeds will ripen in September.

The seventh Sort grows naturally in low swampy Places in the West-Indies, where their Branches bend down to the Earth, and send forth Roots; so that one single Plant will in a few Months have many Trunks, which will spread over a large Spot of Ground. The Bark of these Trees is wrought into Ropes, and is of great Use to the Inhabitants of America.



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LACRYMA JOBI, Job's Tears.

The Species are ;

1. LACRYMA JOBI. *Clus. Hist.*
Common Job's Tears.

2. LACRYMA JOBI *latiore folio.*
Tourn. Broad-leav'd Job's Tears.

3. LACRYMA JOBI *Americana altissima, arundinis folio & facie.*
Plum. Tallest American Job's Tears, with a Leaf and the Face of Reeds.

The first Sort is often used by the Inhabitants of *Spain* and *Portugal*, to make Bread, in a Scarcity of Corn. The second Sort is a Variety of the first, from which it differs, in having a much broader Leaf. These are seldom cultivated in *England*, unless in some curious Gardens for the sake of Variety. These are both annual Plants, which must be sown the Beginning of *March*, on a warm Border of light Earth, at about a Foot asunder or more, and require no other Care, but to keep them clear from Weeds ; and if the Season proves warm, they will perfect their Seeds very well in this Country.

The third Sort grows plentifully in several Parts of *America*, where the poorer Sort of Inhabitants make a kind of Flour of the Seeds, with which they make Cakes to serve them instead of Bread. This Sort has been brought into *Europe*, but the Seeds have not come to Perfection in this Country ; for it requires much Warmth, and a long Summer to ripen it. The Roots of this Kind have remained in the open Air thro' the Winter, and have made fresh Shoots the following Spring ; so that I believe it is a biennial Plant in its native Country. If this Sort is pro-

pagated in *England*, as a Curiosity, the surest Method to bring it to Perfection is, to sow the Seeds in small Pots, filled with light Earth, and plunge them on a moderate Hot-bed to bring up the Plants. As soon as they appear, they should have a large Share of fresh Air admitted to them, to prevent their being drawn up too weak ; and when the Weather is warm, they should be inured to bear the open Air by degrees, into which the Plants must be removed about the middle of *April* ; at which time it will be proper to shift them into larger Pots, and place them in a warm Situation, being careful to water them frequently in dry Weather. By this Management, the Plants having their Roots confined in the Pots, will not grow so large as those in the full Ground, and will sooner produce Seed. If the Season proves favourable, you may hope to bring it to Perfection : but whenever it fails, the Pots may be removed into the Green-house in Autumn, where the Plants may be preserved through the Winter ; and thereby good Seeds may be obtained the following Season.

LAMIUM, Dead-nettle.

The Characters are ;

It hath a labiated Flower consisting of one Leaf, whose upper Lip is hollow like a Spoon ; but the under one is divided into two Segments, in the form of a Heart, and both end in Chaps, which are brimmed and edged ; out of the Flower-cup, which is fistulous, and cut into five Segments, rises the Pointal, fixed like a Nail in the hinder Part of the Flower, and attended, as it were, by four Embryo's, which afterwards become so many triangular Soeds, shut up in a Husk, which was before the Flower-cup.

The Species are ;

1. LAMIUM *purpureum foetidum, folio subrotundo, sive Galeopsis Dioscoridis.*

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ridis. C. B. P. Purplestinking Archangel or Dead-nettle.

2. *LAMIUM purpureum fætidum, folio subrotundo, minus*. H. L. Lesser purple stinking Dead-nettle.

3. *LAMIUM folio oblongo, flore rubro*. Park. Theat. Archangel with an oblong Leaf, and a red Flower.

4. *LAMIUM album, non fædens, folio oblongo*. C. B. P. White Archangel or Dead-nettle.

5. *LAMIUM parietariæ facie*. Moriss. H. R. Bl. f. Dead-nettle, with the Face of Pellitory.

6. *LAMIUM folio caulem ambiente, minus*. C. B. P. Lesser Dead-nettle, with the Leaves encompassing the Stalk.

7. *LAMIUM rubrum minus, foliis profunde incis. Raii Syn.* Lesser red Dead-nettle, whose Leaves are deeply cut.

8. *LAMIUM album fætidum, folio subrotundo, minus*. C. B. P. Lesser stinking Dead-nettle, with white Flowers, and a roundish Leaf.

9. *LAMIUM foliis caulem ambientibus, majus*. C. B. P. Greater Dead-nettle, with the Leaves encompassing the Stalk.

10. *LAMIUM orientale, nunc moschatum, nunc fætidum, magno flore*. Tourn. Cor. Eastern Dead-nettle, sometimes sweet-scented, and sometimes stinking, with a large Flower.

11. *LAMIUM orientale, foliis eleganter laciniatis*. Tourn. Cor. Eastern Dead-nettle, with elegantly jagged Leaves.

12. *LAMIUM orientale incanum, flore albo, cum labio superiori crenato*. Tourn. Cor. Hoary Eastern Dead-nettle, with a white Flower, whose upper Lip is notched.

13. *LAMIUM orientale incanum, flore purpureo ascende, cum labio superiori crenato*. Tourn. Cor. Hoary Eastern Dead-nettle, with a purplish Flower, whose upper Lip is notched.

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14. *LAMIUM orientale album latifolium altissimum*. Tourn. Cor. Tallest Eastern Dead-nettle, with a broad Leaf, and a white Flower.

The first, second, sixth, seventh, eighth and ninth Sorts, are annual Plants, which grow wild on dry Banks in several Parts of *England*; therefore are rarely preserved but in Botanic Gardens, for the sake of Variety. All these Sorts flower in *March* and *April*, and their Seeds are ripe soon after, which if permitted to scatter, the Plants will come up in great Plenty, and become troublesome Weeds. The first Sort is used in Medicine; but the Markets are supplied with it, from the Fields.

The fourth Sort is also very common under Hedges, in divers Parts of *England*; this is also used in Medicine. The Roots of this Sort spread very far under Ground; and where it once fixes, it is very difficult to eradicate, especially under Hedges or Trees, where the Roots of this Plant will intermix with those of the Plants, so that they cannot be easily taken out, without disturbing the Roots of the Plants. The third Sort is a Variety of the fourth, from which it differs in the Colour of the Flowers, which in this are of a bright red Colour. These two are abiding Plants, which propagate themselves very fast by their creeping Roots.

The fifth, tenth and eleventh Sorts, are annual Plants, which do not grow wild in *England*, but are equally hardy with those before-mentioned. These flower early in the Spring, and if their Seeds are permitted to scatter, the Plants will come up in the Autumn in great Plenty. The fifth Sort has no great Beauty, and is only preserved for Variety, being very like our common Dead-nettle, except in the Difference of the Leaf. But the tenth Sort deserves a Place

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in some abject Part of the Garden, for the Beauty of its Leaves in Winter, which are variegated somewhat like the common Cyclamen, and make an Appearance very like that Plant in Winter. These Leaves, in dry Weather, have a musky Scent on their being gently rubbed; but if they are bruised, they become stinking and disagreeable.

The twelfth, thirteenth and fourteenth Sorts, are abiding Plants, which will trail on the Ground, and send fourth Roots from the Joints of their Stalks, whereby they propagate themselves very fast; and where-ever they are permitted to have room in a Garden, they should be kept within Compass; otherwise they will spread, and become troublesome.

LAMPSANA, Nipplewort.

The Characters are;

It hath a semistlosculous Flower, consisting of many half Florets, upon which the Embryo's sit, and are included with them in a multifid Cup, consisting of one Leaf, which afterward becomes a streaked Vessel, including many narrow-pointed Seeds.

The Species are;

1. LAMPSANA. *Dod. Pempt.* Common Nipplewort.

2. LAMPSANA *folio amplissimo crispo. Petiver.* Nipplewort with a large curled Leaf.

3. LAMPSANA *orientalis elatior, foliis nigris maculis aspersis. D. Sheppard.* Taller Eastern Nipplewort, with Leaves spotted with black Marks.

The first Sort is a very common Weed on dry Banks, and on the Way-fides, in most Parts of England; the other two Sorts were brought from abroad into the Botanic Gardens, where they are preserved for Variety, but they are not allowed a Place in any other Gardens.

These are all annual Plants, which

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flower in April, and their Seeds ripen in June, which if permitted to scatter, will stock the Ground with Plants; so that where they are admitted, there should be but few of the Plants suffered to seed, and those should be in some rude abject Part of the Garden, lest by their scattering Seeds, they should fill the Garden, and overbear such Plants, as better deserve a Place.

But where the common Sort hath been suffered to shed its Seeds, and thereby become a troublesome Weed, it may be destroyed by keeping it houghed down before it comes to flower, so that no Plants be permitted to scatter Seeds; for as it is an annual Plant, so, where-ever Care is taken to prevent its Seeding, it will in two or three Years be absolutely destroyed.

The first Sort was formerly used in Medicine in England, and is still continued in Use in other Countries: but it is not mentioned by the College of Physicians in their Dispensatory.

LAND. Its Improvement.

1. By Inclosing.

Inclosing of Lands, and dividing the same into several Fields, for Pasture or Tillage, is one of the most principal ways of Improvement; first, by ascertaining to every Man his just Property, and thereby preventing an Infinity of Trespasses and Injuries, that Lands in common are subject unto; and, secondly, it being of itself a very great Improvement; for where Land is properly inclosed, and the Hedge-rows planted with Timber-trees, &c. it preserves the Land warm, and defends and shelters it from the violent cold nipping Winds, which in severe Winters frequently destroy much of the Corn, Pulse, or whatsoever grows on the open Field, or champain Grounds.

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And where it is laid down for Pasture, it yields much more Grass than the open Fields, and the Grass will begin to grow much sooner in the Spring. The Hedges and Trees also afford Shelter for the Cattle, from the cold Winds in Winter, as also Shade for them in the great Heats of Summer. And these Hedges afford the diligent Husbandman Plenty of Fuel, as also Plough-boot, Cart-boot, &c. and where they are carefully planted and preserved, furnish him with Timber, and Mast for his Swine; or where the Hedge-rows are planted with Fruit-trees, there will be a Supply of Fruit for Cyder, Perry, &c. which in most Parts of *England*, are of no small Advantage to the Husbandman.

By this Method of Inclosing, there is also much more Employment for the Poor, which is therefore a good Remedy against Beggary; for in those open Countries, where there are great Downs, Commons, Heaths and Wastes, there is nothing but Poverty and Idleness to be seen amongst the Generality of their Inhabitants. It is very observable of late Years, how much Advantage the inclosing of the Land in *Worcestershire*, and some other Counties at a Distance from *London*, has been to the Inhabitants; for before this Method was introduced amongst them, the Lands for the most part lay in Commons, &c. upon which the poorer Sort of People built themselves Cottages with mud Walls, where they contented themselves with a Cow or two, and some Swine: and those of them who were more industrious than the rest, travelled to the Neighbourhood of *London* every Spring, where they were employed in the Gardens and Fields for the Summer Season, and in Autumn they returned to their native Countries, where they lived in Win-

ter, upon what Money they had saved in Summer. But since they have converted their Wastes and Commons into Inclosures, there are but few of the Inhabitants of those Countries, who come to *London* for Work, in comparison to the Numbers that formerly came; so that most of the Labourers who come to *London* for Employment, are either *Welsh*, or Inhabitants of some distant Counties, where this Improvement hath not as yet been introduced.

The Advantages of inclosing Land are now so generally known, that there is no occasion for me to enumerate them here; since the Improvements which have been made of late Years, in several Parts of *England*, and the Increase of Rent, that is every-where made by those who inclose, are sufficient Arguments to enforce the Practice, and render it general; more especially in the North, where it is most neglected; because it would greatly shelter the Lands, and render them much warmer than they now are.

In inclosing of Land, there should be regard had to the Nature of the Soil, and what it is intended for; because Corn-land should not be divided into small Parcels; for besides the Loss of Ground in Hedges, &c. the Corn doth seldom thrive so well in small Inclosures, as in more open Fields; especially where the Trees are large in the Hedge-rows. The Grass also in Pastures is not so sweet near Hedges, or under the Drip of Trees, as in an open Exposure; so that where the Inclosures are made too small, or the Land over-planted with Trees, the Herbage will not be near so good, nor in so great Plenty, as in larger Fields. Therefore, before a Person begins to inclose, he should well consider how he may do

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it to the greatest Advantage: as for instance, it is always necessary to have some smaller Inclosures near the Habitation, for the Shelter of Cattle, and the Conveniency of shifting them from one Field to another, as the Season of the Year may require; and hereby the Habitation, Barns, Stables and Out-houses, will be better defended from strong Winds, which often do great Damage to those that are exposed to their Fury. These small Inclosures may be of several Dimensions; some of them three, four, six or eight Acres in Extent; but the larger Divisions for Corn should not contain less than twenty or thirty Acres, or more, according to the Size of the Farm.

The usual Method of inclosing Land, is with a Ditch and Bank set with Quick. But in Marsh Land, where there is Plenty of Water, they content themselves with only a Ditch, by the Sides of which they usually plant Sallows or Poplars, which being quick of Growth, in a few Years afford Shade to the Cattle; and when they are lopped, produce a considerable Profit to their Owners. In some Counties, the Division of their Lands is by dry Walls, made of flat Stones, laid regularly one upon another, and laying the top Course of Stones in Clay, to keep them together, the Weight of which secures the under ones. But in some Parts of *Sussex* and *Hampshire*, they often lay the Foundation of their Banks with flat Stones, which is of a considerable Breadth at Bottom: upon which they raise the Bank of Earth, and plant the Hedge on the Top, which in a few Years makes a strong durable Fence, especially if they are planted with Holly, as some of those in *Sussex* are.

In Marshes and open Pastures, where there are no Hedges, the Ditches are generally made six Feet

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wide at the Top, especially those which are on the Side of high Ways or Commons; but the common Ditches about Inclosures are seldom more than three Feet and a half wide at Top, and one Foot and a half at Bottom, and two Feet deep; that the Sides may have a good Slope, and not be too upright, as they are frequently made about *London*, so that they are continually washing down with great Rains. In these narrow-bottomed Ditches, the Cattle cannot stand to turn themselves, so as to crop the Quick. But where the Ditches are made wider, they should be proportionally deeper: as for instance, if the Ditch is made five Feet broad, it must be three Feet deep; and if six Feet broad, three and a half deep, and so in proportion.

The Method of inclosing Lands, by raising high Banks of Earth, on the Side of which the Quick is planted, (as it is too much practised in many Places near *London*) is intolerable; for it is not only unsightly, but very expensive: for these Banks are continually washing down, so that they must be repaired every Year at least, if not oftener; otherwise the Earth will be in a few Years washed from the Roots of the Quick, that for want of proper Nourishment, the Hedge will soon decay: which is the Case with the greatest Number of the Hedges about *London*. Beside, it is a very uncertain way of planting Quick on the Side of a steep Bank, where all the Moisture runs off; so that, if the Spring should prove dry, after it is planted, there is a great Hazard whether half the Plants will grow; and those that take, seldom make much Progress; whereas those planted on the plain Surface, where they enjoy the Advantages of Sun and Moisture, will in four Years make

make a better Fence, than one of these Bank Hedges will in eight Years, and will continue good much longer than the other. Therefore I should advise the Banks on which the Hedges are to be planted, not to be raised more than one Foot above the Surface of the Ground, where the Land is dry, and in wet Land not more than two Feet, which will be enough.

I shall now mention the most proper Plants for making of Fences for the different Soils and Situations, so as to answer the Expectation of the Planter: and first the White Thorn is esteemed the best for Fencing, and will grow upon almost any Soil, and in any Situation; but it succeeds best on a hazle Loam. Of this there are three or four Varieties, which differ in the Breadth of their Leaves, and the Size of their Haws; but that Sort with the smallest Leaves and Haws, will make the closest Fence. For it is very certain, that the Branches of all Sorts of Trees are produced at a Distance in proportion to the Size of their Leaves; so that Yews, and other ever-green Trees with small Leaves, will always make a closer Hedge than other Trees, whose Leaves are larger. Therefore for the closest Hedge, the smallest Haws should be chosen; but where the most vigorous Shooters are required, for the Advantage of Lopping, there the largest Haws should be preferred. But as these Hedges are usually planted from a Nursery, where the Haws are promiscuously sown, it is very common to see two or three Sorts planted in the same Hedge, which may be easily distinguished, when they have obtained Strength, by the Difference of their Growth. Indeed, where a Person is curious in raising of his own Quick, it is worth while to gather the Haws separately, and

sow them apart, and each Sort should be planted in a separate Hedge, which will render the Hedges more equal in their Growth. If these Haws are sown in the Places where they are designed to remain for a Fence, they will make a much greater Progress in a few Years, than those which are transplanted; but as the Seeds remain a whole Year in the Ground before the Plants appear, few People care to practise this Method.

The next to the White Thorn, is the Black Thorn, which though not so generally esteemed as the White, yet it will make an excellent Fence, where proper Care is taken in the Planting and After-management of it; and the Loppings of this Hedge make much the best Bushes, and are of longer Duration for Dead-hedges, than any other Sort; and are very proper to mend Gaps in Fences; for their Branches being beset with sharp long Thorns, the Cattle are not so apt to crop them as the White Thorn and some other Sorts. These Hedges are also better, if the Stones are sown on the Spot where they are to remain, than where the Plants are taken from a Nursery.

The Crab will also make a strong durable Fence; this may be raised by sowing of the Kernels in the Place where the Hedge is designed; but then there should be great Care taken of the Plants while they are young, to keep them clear from Weeds, as also to guard them from Cattle. When these Stocks have obtained Strength, some of them may be grafted with Apples for Cyder, where the Fence is not exposed to a public Road: but these Grafts should not be nearer than thirty-five or forty Feet, lest they spoil the Hedge by their Heads overgrowing and dripping on it.

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The Holly is also an excellent Plant for ever-green Hedges, and would claim the Preference to either of the former, were it not for the Slowness of its Growth while young, and the Difficulty of transplanting of the Plants, when grown to a moderate Size. This will grow best on cold stony Lands, where if it once takes well, the Hedge may be rendered so close and thick, as to keep out all Sorts of Animals, and will grow to a great Height, and is of long Duration. These Hedges may be raised by sowing of the Berries, in the Place where they are designed to remain: but as they continue in the Ground an intire Year, before the Plants appear, few Persons care to wait so long; therefore the usual Method is to plant the Hedges with Plants of three or four Years Growth; but where this is practised, they should not be transplanted till toward the End of *March*; and the Surface of the Ground should be covered with Mulch, near their Roots, after they are planted, to keep the Earth moist; and if the Season should prove dry, the Plants should be watered at least once a Week, until they have taken Root, otherwise they will be in Danger of miscarrying.

The Alder will also make a good Hedge, when planted on a moist Soil, or on the Side of Rivers, or large Ditches; and will preserve the Bank from being washed away, where there are running Streams; for they spread pretty much at Bottom, and send forth Suckers from their Roots in great Plenty. But these Hedges should be sheared at least once a Year, in order to make them thick. These Alder-hedges are very ornamental, when they are well kept in large Gardens; and as they will thrive best on wet swampy Lands,

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where many other Plants will not live, they should be selected for such Situations.

Of late Years the Furze has been much propagated for Hedges in several Parts of *England*, and indeed will make a good Fence on poor sandy or gravelly Soils, where few other Plants will grow. The best Method of raising these Hedges is, to sow the Seed about the latter End of *March*, or the Beginning of *April*, in the Place where the Hedge is designed; for the Plants will not bear to be transplanted, unless it be done while they are young, and then there is great Hazard of their Taking. The Ground where the Seeds are to be sown, should be well cleansed of Weeds, and the Surface made light; then there should be two or three Drills made (according to the Width which the Hedge intended) about half an Inch deep, into which the Seeds should be scattered pretty thick; and then the Drills should be filled up with the Head of a Rake, to cover the Seeds. This Work should be performed in dry Weather; for if much Wet falls soon after the Seeds are sown, it is apt to burst them. When the Plants are come up, they should be kept clear from Weeds, that they may spread, and grow thick at Bottom; and if these Hedges are secured from Cattle browsing on them, and are cut every Spring, just before they begin to shoot, they will make an exceeding close Fence: but where they are designed to be cut for Fuel, then the best way is to let them spread in Width; and when they are two Years old, to cut them down in the Spring, just before they begin to shoot; within two or three Inches of the Ground, which will cause them to send forth a Number of Shoots from each Root, and thereby increase the Width of the Hedge;

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and by so doing the Plants will not run up tall and weak, and be in Danger of being weighed down by great Falls of Snow. These Hedges, when they are well grown, may be cut down every third or fourth Year for Fuel; and if there is a treble Row of Furze sown, at about three Feet apart, they may be cut down alternately, so that there will be a Fence always remaining: but this is only recommended for such sandy Lands as let for a small Rent, and where Fuel is scarce. The best Sort of Furze for this Purpose is the greater Kind, commonly called the *French Furze*, which will grow to a great Height, and doth not spread so much as the ordinary small Sort.

Alder is sometimes planted for Hedges, being very quick of Growth; so that if Sticks or Truncheons, about four or five Feet long, be thrust into a Bank slope-wise each way, so as to cross each other, and thereby form a sort of Chequer-work, it will make a Fence for Shelter in one Year. But as this is a vigorous growing Plant, so it will never form a close Fence; and the young Shoots, being very soft and pithy, are soon broken by Cattle, or Boys in their Play. Besides, where they are suffered to bear Berries, and these are scattered over the neighbouring Land, they will come up the following Spring, and become very troublesome. Where these Hedges are planted, they may be cut down every third Year, near the Ground; and these Stakes (when divested of their Bark, so as to prevent their Growing) will last longer in the Ground, to support Vines, or any other Plants, which do not require tall Stakes, than any other Sort of Tree yet known. And where the Trees are suffered to grow to any considerable Size, the Wood is as hard as Box, and very useful for

Turners and Instrument-makers. The best Season for planting of these Truncheons is soon after *Michaelmas*, because these Plants shoot very early in the Spring. Of late Years, there have been many Hedges, and other Plantations, made of the white-berried Alder, for the sake of their Fruit to make Wine; which if rightly made, hath the Flavour of Frontinac Wine, and is by some Persons vendid for it.

There are some other Plants, which have been recommended for Fences; but those here enumerated are the only useful Sorts for such Purposes; therefore I shall pass over the others, as not worthy of the Care of the Husbandman. And as to the farther Direction for Planting, and preserving of Hedges, with Instructions for plashing or laying them, the Reader is desired to turn to the Articles of *Fences* and *Hedges* in the former Volumes of the *Gardeners Dictionary*, where there are particular Directions for these Works exhibited; which I shall not repeat here.

The Draining of Land is also another great Improvement to it; for tho' Meadows and Pastures, which are capable of being overflowed, produce a greater Quantity of Herbage than dry Land; yet where the Wet lies too long upon the Ground, the Grass will be sour, and extremely coarse. And where there is not Care taken in time to drain this Land, it will produce little Grass, and soon be over-run with Rushes and Flags, so as to be of little Value. The Land which is most liable to this, is cold stiff Clays, where the Water cannot penetrate, but is contained as in a Dish; so that the Wet which it receives in Winter, continues till the Heat of the Sun exhales the greatest Part of it.

The best Method for Draining of these Lands, is to cut several Drains

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across the Land, in those Places where the Water is subject to lodge ; and from these cross Drains, to make a convenient Number of other Drains, to carry off the Water to either Ponds or Rivers, in the lower Parts of the Land. These Drains need not be made very large, unless the Ground be very low, and so situated as not to be near any River, to which the Water may be conveyed : in which Case there should be large Ditches dug at proper Distances, to contain the Water ; and the Earth which comes out of the Ditches, should be equally spread on the Land, to raise the Surface. But where the Water can be conveniently carried off, the best Method is to make underground Drains, at proper Distances, which may empty themselves into large Ditches, which are designed to carry off the Water. These sort of Drains are the most convenient, and as they are hid from the Sight, do not incommode the Land ; nor is there any Ground lost, where these are made.

The usual Method of making these Drains, is to dig Trenches, and fill their Bottoms with Stones, Bricks, Rushes or Bushes, which are covered over with the Earth, which was dug out of the Trenches : but this is not the best Method, because the Water has not a free Passage thro' the Drains ; so that whenever there is a Flood, these Drains are often stopp'd by the Soil which the Water frequently brings down with it. The best Method I have yet observed to make these Drains, is to dig Trenches to a proper Depth for carrying off the Water, which should be three Feet wide at their Tops, and sloped down to about a Foot wide at their Bottom : then having prepared a Quantity of good Brush-wood, the larger Sticks should be

cut out to Pieces of about sixteen or eighteen Inches in Length, which should be laid across the lower Part of the Drain, at about fourteen Inches from the Bottom, so as to leave about a Foot of the lower Part of the Drain open, thro' which the Water is to pass ; then cover these Sticks with the smaller Brush-wood, Furze, Broom, or any other Kind of Brush, laying it lengthwise pretty close ; on the Top of these may be laid Rushes, Flags, &c. and then the Earth laid on to cover the Whole. These sort of Drains will continue good for a great Number of Years, and are never liable to the Inconveniencies of the other Drains ; for the Water will find an easy Passage thro' them, and where there is plenty of Brush-wood, they are made at an easy Expence ; but in such Places where Wood is scarce, it would be chargeable to make them : however, in this Case it would be a great Advantage to these Lands, to plant a sufficient Number of Cuttings of Willow, or the black Poplar, on some of the moist Places, which would furnish Brush-wood for these Purposes in four or five Years ; and as the Expence of planting these Cuttings is trifling, there cannot be a greater Advantage to an Estate which wants Draining, than to practise this Method ; which is in every Person's Power, since there is little Expence attending it.

The best Time of the Year for making of these Drains, is about *Michaelmas*, before the heavy Rains of Autumn fall ; because at this Season the Land is usually dry, so that the Drains may be dug to a proper Depth. For when the Ground is wet, it will be very difficult to dig to any Depth, because the Water will drain in, where-ever there is an Opening in the Ground.

When these Drains are made, and the Water carried off the Land, it will be proper to pare off the Rushes, Flags, &c. which may be laid in Heaps in proper Places to rot, and will afford a good Manure for the Land. The Ground must also be ploughed, to destroy the Roots of noxious Weeds; and if it be laid fallow for one Season, and ploughed two or three times, it will greatly mend the Land. The Rushes and Flags, which were pared off the Ground, when rotten, should be spread over the Surface, and the Grass-seed sown thereon, which will greatly forward the Grass, so that it may soon be brought to a good Turf; which Land thus mended, has been let for four times the Rent it was set at before.

There are some Persons, who, after they have pared off the Flags, Rushes, &c. from their Land, lay them in small Heaps, and burn them in dry Weather, then spread the Ashes on the Land to improve it; which is a good Method where a Person is in haste to have Grass again; but where the Ground can be fallowed one Year, it will loosen the Soil, and more effectually destroy the Roots of all noxious Weeds; and the Rushes, &c. when rotted, will afford a much larger Quantity of Manure for the Land, than when it is burnt: besides, this can only be practised in the Summer Season, when the Weather is very dry; for if there should fall much Rain, the Fires will go out, and it will be impracticable to burn it. But where the Method of Burning is practised, the Heaps should not be too great, and it should burn very slowly; which will render the Ashes a much better Manure, than where the Fire is too violent, or the Heaps too large; for in this Case, the Inner-part will be

over-burnt, before the Fire reaches the Outside of the Heap.

As the Draining of cold wet Lands is a great Improvement to them, so the Floating or Watering of dry loose Lands is not a less Advantage to them. This may be effected easily, where there are Rivers, or Reservoirs of Water, which are situated above the Level of the Ground designed to be floated, by under-ground Drains, (made after the manner of those before directed for Draining of Land) thro' which the Water may be conveyed at proper Seasons, and let out on the Ground: in order to this, there must be good Sluices made at the Heads of the Drains, so that the Water may never get out, but at such times as it is required; for if this be not taken care of, the Water, instead of improving the Land, will greatly damage it.

But where the Land lies so high, as that there is no Water in the Neighbourhood lying above its Level, it will be more expensive, because in such Case the Water must be raised by Machines, from Reservoirs or Streams which lie below it. The most common Engine used for this Purpose, is the *Persian Wheel* (which being well described, and figured in *Woolridge's Art of Husbandry*, is needless for me to repeat here). Yet notwithstanding the Expence of raising the Water, it has been found greatly advantageous in many Parts of *England*, to drown the Lands; for the Profit has many times more than doubled the Charge.

The Times for drowning of Land are after the Grass is close fed, from the Middle or latter End of *November*, till the End of *April*; but it is done to most Advantage in the Spring, especially if the Season proves dry. Where the Land is very hot and dry, and

and it lieth convenient to be watered at a small Expence ; it should be repeated every Week in dry hot Weather, which will prove a great Advantage to the Land. But whenever this is done, there should no Cattle be admitted while it is wet ; for they will poach, and spoil the Turf.

Another great Improvement of Land is by Burning of it, which for four, heathy, and rushy Land, be it either hot or cold, wet or dry, is a very great Improvement ; so that such Lands will in two or three Years after Burning, yield more, exclusive of the Charges, than the Inheritance was worth before. But this is not to be practised on rich fertile Land ; for as the Fire destroys the acid Juice, which occasions Sterility in the poor Land, so it also will consume the good Juices of the richer Land, and thereby impoverish it ; therefore it hath been with great Reason disused in deep rich Countries.

The usual Method of Burning Land, is to pare off the Turf with a breast Plough, turning of it over as it is cut, that it may dry the better. And if it prove hot dry Weather, when this Work is done, then it needs no more Turning ; but if Rain should fall, it must be turned. and the Turfs set a little hollow, that they may dry the better ; and when they are thorough-dry, they may be laid on small Heaps, about half a Cart-load on a Heap, or less ; for the smaller the Heaps are, provided there is Quantity enough to make a good Fire, so as to consume the Whole to Ashes, it is the better : if the Turf be full of fibrous Roots, or hath much Moss or Fern on it, it will burn without any additional Fuel ; but if it hath not, the Heaps should be raised on small Bundles of

Heath, Fern, Gorze, &c. which will set the Whole on Fire ; but there should be no more of these things applied, than what is necessary to kindle the Fire, because the flower the Turf consumes, the better will be the Ashes. When the Turf is wholly consumed, the Ashes should be equally scattered over the Ground in a calm Day, lest Wind should drive it in Heaps. Then the Land should be gently ploughed, and the Seeds sown thereon ; for if the Ground is plough'd too deep, the Ashes will be buried too low for the Roots of the Grass or Corn to reach them, for a considerable Time ; nor should the Ashes lie too near the Surface, because then the Roots will reach them too soon, and the Strength of the Ashes will be spent to nourish only the Blade ; so that the Corn will grow too rank in Winter, and when the Roots in the Spring strike down lower, they will meet with a poorer Soil ; wherefore the Stalks and Ears will not have so much Advantage from the Improvement, as the useless Blade. But where Care is taken in this Particular, it is wonderful what Success it hath : for by this Method, the poorest Plains, and four heathy Lands, have been rendered as fertile, as almost any good cultivated Ground whatever.

It is also a very great Improvement, where Land is overgrown with Broom, Furze, &c. to stub them up by their Roots ; and when they are dry, lay them on Heaps, and cover them with the Parings of the Earth, and burn them, and spread the Ashes over the Ground. By this Method vast Tracts of Land, which as present produce little or nothing to their Owners, might be made good for a small Expence, so as to become good Estates to the Proprietors.

The several other Improvements of Land by Dunging, will be exhibited under the Article *Manure*. And as to the Improvement of Land, by sowing of Grasses, &c. that is mentioned under the several Articles, where the Plants are treated of; as the different Kinds of Clover or Trefoil under *Trifolium*, the St. Foyn under *Onobrychis*, Lucern under *Medica*, Rye-grass under *Gramen*, Spurry under *Spergula*, to which Articles the Reader is desired to turn.

LAPATHUM, Dock.

In the former Volumes there are only three *Species* of this *Genus* enumerated, (*viz.*) The Pontic Rhubarb, the Bastard Monks Rhubarb, and the *Patience*: but as there are several other *Species*, some of which are used in Medicine, I shall enumerate them in this Place.

1. LAPATHUM *folio acuto plano*. C. B. P. Sharp-pointed Dock.

2. LAPATHUM *folio acuto crispo*. C. B. P. Curled sharp-pointed Dock.

3. LAPATHUM *folio acuto rubente*. C. B. P. Bloodwort or sharp-pointed Dock, with red Veins and Foot-stalks to the Leaves.

4. LAPATHUM *folio acuto, flore aureo*. C. B. P. Sharp-pointed Dock, with golden Flowers.

5. LAPATHUM *acutum minimum*. J. B. The least sharp-pointed Dock.

6. LAPATHUM *vulgare, folio obtuso*. J. B. Common broad-leaved Dock, vulgarly called the *Butter Dock*.

7. LAPATHUM *sylvestre, folio subrotundo, seminis involucris dentatis nobis*. Mor. Hist. Common broad-leaved Dock, with indented Covers to the Seeds.

8. LAPATHUM *aquaticum, folio subitali*. C. B. P. Great Water Dock.

9. LAPATHUM *aquaticum minus*. C. B. P. Lesser Water Dock.

10. LAPATHUM *pulchrum Bononiense sinuatum*. J. B. The Fiddle Dock.

11. LAPATHUM *bortense latifolium*. C. B. P. The true Monks Rhubarb.

12. LAPATHUM *Chalepense, folio acuto, seminum involucris profunde dentatis*. Mor. Hist. Sharp-pointed Aleppo Dock, with the Seed-covers deeply indented.

13. LAPATHUM *Aegyptiacum annum, parietaria folio, capsulâ seminis longius barbatâ*. Hort. Pis. Annual Egyptian Dock, with a peltitory Leaf, and long Beards to the Seed-vessels.

14. LAPATHUM *orientale, folio latissimo undulato & mucronato, fere Rhabarbarum verum*. The true Rhubarb.

The ten first-mentioned Sorts grow wild in many Parts of England, and are seldom admitted into Gardens; but as several of these are used in Medicine, I have put down the Names by which they are distinguished amongst the Botanists. The first and third Sorts are directed by the College of Physicians, to be used in Medicine; but the People who supply the Markets, take the Roots of all the Sorts promiscuously as they find them. These two Sorts grow near Hedges, and in shady Lanes, which are not much frequented, in most Parts of England; but the third Sort is less common than the first, from which it differs in nothing but the Stalks and the Veins of the Leaves being red.

The Roots of the eighth Sort are also used in Medicine; this is the Plant which *Muntingius*, a curious Botanist of Groningen in Holland, supposes to be the *Herba Britannica* of the Antients, which was found to be a sovereign Remedy for the Scurvy. This Sort grows frequently

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in standing Waters, where it produces Leaves two and a half or three Feet in Length. When this Sort is planted on dry Land, or the Water drained off the Ground, where it naturally grows, it will not rise to near the Size of those Plants which grow in deep Waters.

The eleventh Sort, whose Roots are used in Medicine, and is the true Monks Rhubarb, is not common in *England*; therefore those who use Roots of *English* Growth, are supplied with the Patience Dock, or the round-leaved *Alpine* Dock, both which Sorts are cultivated in the *English* Gardens.

The twelfth and thirteenth Sorts are Foreigners, which have been introduced by the Curious in Botany for the sake of Variety; but they are not used in Medicine, and as they are Plants of no great Beauty, they do not merit a Place unless in Botanic Gardens, for the sake of Variety. The twelfth Sort will continue two or three Years, but the thirteenth Sort is an annual Plant.

The Seeds of the fourteenth Sort I received for the true Rhubarb: these were gathered by a Gentleman who was on the Spot, where the Roots are taken up, and sent to *Petersburgh* in *Muscovy*, for the Supply of *Europe*; therefore there is no great Reason to doubt of its being the true Kind. This Sort is extremely hardy; for the Seeds were sown in the full Ground, where the Plants came up, and have remained, without any other Care but to keep them clear from Weeds: so that, when we can obtain Seeds from these Plants, it may be sown for Use, since it appears to be equally hardy with our common Docks, and there is little Reason to fear that it may be equal in Goodness to the foreign Rhubarb.

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All the Sorts of Dock are propagated by Seeds, which should be sown in Autumn, soon after they are ripe; for when the Seeds are kept out of the Ground until Spring, they will remain a whole Year in the Ground before the Plants appear; whereas those sown in Autumn, will come up the following Spring. Where the Seeds of the true Rhubarb (or any of the other Sorts, whose Roots are used in Medicine) are sown to propagate the Plants, they should have a Soil rather moist than dry, and of a pretty good Depth, that the Roots may have room to run down. The Seeds should be sown thin; and in the Spring, when the Plants come up, they should be houghed out, after the manner directed for Parsnips and Carrots, leaving the large growing Kinds (as the true Rhubarb, Rhapentic, and *Alpine* round-leaved Dock) two Feet and a half asunder at least; because these produce large spreading Leaves, and if they have not sufficient room to grow, the Roots will be small. When this is done, the Plants will require no other Management, but to keep them clear from Weeds; and in two or three Years time the Roots will be fit for Use, when they should be taken up soon after their Leaves decay in Autumn. But it will be well worth trying, whether those Plants whose Flower-stems are pinched off soon after they appear in Spring, (and are never suffered to flower or seed) do not produce better Roots, than those which are permitted to seed; because we find most other Roots grow sticky and tough after they have seeded, and are not near so good for Use as before; and as these Plants frequently send out Flower-stems the second Year, it may be necessary to prevent their

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Growth in order to encourage their Roots.

LARIX, The Larch Tree.

There is a particular Sort of this Tree, which was brought from *America*, which is growing in the Garden of Mr. *Peter Collinson* at *Peckham* in *Surry*, which differs from the *European* Kind, in having darker Shoots. This Kind I do not find mentioned by the Botanists, nor has it been long known in *Europe*, tho' it grows plentifully in some of the Northern Parts of *America*. This doth not promise to make so large Trees as the *European* Kind; therefore should be planted with Trees of lower Growth to form Clumps and Amphitheatres, where it will make a Variety in Summer, when its green Leaves appear. It may be propagated by Seeds, after the same manner as hath been directed for the *European* Kind, in the former Volumes of the *Gardeners Dictionary*; and being a Native of cold Countries, will endure the severest Cold of this Climate.

LATHYRUS, Chichling Vetch.

The Species omitted in the former Volumes, are;

1. LATHYRUS *sativus*, *flore fruticulae albo*. C. B. P. Garden Chichling Vetch, with white Flowers and Fruit.

2. LATHYRUS *sativus*, *flore purpureo*. C. B. P. Garden Chichling Vetch, with a purple Flower.

3. LATHYRUS *sylvestris major*. C. B. P. Great wild Chichling Vetch.

4. LATHYRUS *sylvestris major*, *flore atro-purpureo*. Inst. R. H. Great wild Chichling Vetch, with a dark-purple Flower.

5. LATHYRUS *latifolius*, *flore albo*. Inst. R. H. Everlasting Pea, with a white Flower.

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6. LATHYRUS *angustifolius*, *semine maculoso*. C. B. P. Narrow-leaved Chichling Vetch, with a spotted Seed.

7. LATHYRUS *angustissimo folio, Americanas variegatus*. C. B. P. The most narrow-leaved *American* Chichling Vetch, with a variegated Flower.

8. LATHYRUS *annuus*, *flore caeruleo, cœbri siliquâ*. H. L. B. Annual Chichling Vetch, with a blue Flower, and a Pod shaped like Ochrus.

9. LATHYRUS *Bæticus*, *flore luteo*. Park. Theat. Spanish Chichling Vetch, with a yellow Flower.

10. LATHYRUS *luteus latifolius*. Bot. Monsp. Broad-leaved yellow Chichling Vetch.

11. LATHYRUS *angustifolius*, *siliquâ hirsutâ*. C. B. P. Narrow-leaved Chichling Vetch, with a hairy Pod.

12. LATHYRUS *latifolius annuus*, *siliquâ articulatâ hirsutiore*. H. R. Par. Broad-leaved annual Chichling Vetch, with a very rough jointed Pod.

13. LATHYRUS *angustissimo folio, semine rotundo*. H. R. Par. Narrow-leaved Chichling Vetch, with a round Seed.

14. LATHYRUS *angustissimo folio, semine anguloso*. H. R. Par. Narrow-leaved Chichling Vetch, with an angular Seed.

The first Sort here mentioned is frequently cultivated for Use in several Parts of *Europe*; but in *England* it is rarely to be met with, unless it be in Botanic Gardens, where it is preserved for the sake of Variety. This Plant may be cultivated in the same manner as Tares, and may be used for the same Purposes; but the best Method is to sow them in Drills about eighteen Inches asunder,

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afunder, and so keep the Ground houghed with a Plough to destroy the Weeds between the Rows, in the same manner as is practised for Peas; by which Method the Plants will thrive exceedingly, and become a great Improvement to poor sandy Land.

The second Sort is a Variety of the first, from which it only differs in the Colour of the Flower, this having a fine purple Flower, and is by many Persons sowed in Gardens by way of Ornament. If the Seeds of this Sort are sowed in Autumn, the Plants will come up, abide all the Winter very well, and will flower the following May; but if the Seeds are sown in the Spring, the Plants will not flower till July or August: therefore, by sowing at the two different Seasons, these may be continued in Beauty for several Months.

The third Sort has been by some Persons sown for Feed for Cattle; but it doth not answer near so well for this Purpose as the first Sort, so is not worth Cultivating. The fourth Sort is a Variety of the first, from which it differs in the Colour of the Flower; but is preserved by the Curious in Botany, for the sake of Variety.

The fifth Sort is a Variety of the common Everlasting Pea, the Flowers of this being white, and preserved by several Persons for the Variety; but it is not so beautiful as the common Sort. This may be propagated in the same manner as is directed for the common Sort, in the former Volumes of the *Gardeners Dictionary*.

The nine following Sorts are preserved in some curious Gardens, for the Variety of their Flowers. These may all of them be propagated by sowing of their Seeds, either in

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Spring or Autumn; but those which are sowed in Autumn, should have a light Soil, and a warm Situation, where the Plants will abide the Winter, and come to flower early the following Spring, and their Seeds will ripen in July. But those which are sown in the Spring, should have an open Exposure, and may be planted upon almost any Soil; for they are not very tender Plants in their Culture. These Sorts should all of them be sown where they are designed to remain; for they seldom succeed when they are transplanted, so that where they are sown for Ornament, there should be six or eight Seeds sown in a small Patch, in different Parts of the Borders of the Flower-garden; and when the Plants come up, they should be carefully kept clear from Weeds; and when they are grown two or three Inches high, there should be some Sticks put down by them to support them; otherwise they will trail on the Ground, and become unsightly; besides, they will trail on whatever Plants grow near them.

The sixth and the fourteenth Sorts I have seen cultivated in some Kitchen-gardens for the Table, and are by the People in some Parts of Germany constantly eaten as Peas; but as they are not near so tender or well-tasted as Peas, I believe few Persons in England will ever cultivate them for that Purpose.

LAVENDULA, Lavender.

The *Species* omitted in the former Volumes, are:

1. *LAVENDULA latifolia Indica subcinerea, spica brevior.* H. R. Par. Broad-leaved Indian Lavender, with a short Spike.

2. *LAVENDULA latifolia Hispanica tomentosa.* Inst. R. H. Broad-leaved woolly Spanish Lavender.

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3. *LAUVENDULA latifolia, flore albo. C. B. P.* Broad-leaved Lavender, with a white Flower.

These Sorts are distinguished by most Writers in Botany; but I believe the first Sort here mentioned to be the same with the broad-leaved barren Lavender, mentioned in the former Volumes of the *Gardeners Dictionary*, which is a Degeneracy from the common Sort; for by planting Slips or Cuttings of this Sort, they will often alter, and become narrow-leaved, when the Plants will produce Flowers in as great Plenty as the common Sort, tho', while they continue to have broad Leaves, they do not produce any Flowers.

The second Sort is not common in *England*; this was found by Doctor *Tournefort* in *Spain*. The third Sort is a Variety of the common broad-leaved Kind, from which it only differs in the Colour of the Flower.

These may all be propagated by Slips or Cuttings, which should be planted in the Spring, just before the Plants begin to shoot; which if kept watered in dry Weather, will soon take Root, and most of them will produce Flowers the same Year. They are very hardy in respect to Cold, provided they have a dry hungry Soil, in which they will abide many Years, and become woody.

LAURUS, The Bay-tree.

To this Article must be added;

1. *LAURUS Americana mas, foliis subrotundis, floribus in capitulum collectis. Houst.* American Bay, with roundish Leaves, and Flowers collected in a Head.

2. *LAURUS Americana femina, foliis subrotundis, fructu albo umbellato. Houst.* Female American Bay, with roundish Leaves, and white Fruit growing in an Umbel.

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These two Sorts were discovered by the late Doctor *William Houstoun*, at *La Vera Cruz*; from whence he sent the Seeds into *Europe*, which have furnished some curious Gardens with the Plants. These being Natives of a warm Country, must be preserved in Stoves; otherwise they will not live through the Winter in this Climate, especially while they are young; but when they have been raised to have Strength, they may be kept in a warm Green-house, without any Fire. During the Summer Months, they may be placed in the open Air, in a warm sheltered Situation; but they should not remain too long abroad in Autumn, for if the Frost should pinch them, they will soon decay. In warm Weather, these Plants must be frequently watered; but in Winter they should have it more sparingly, unless they are kept warm, when they will require a greater Share. As these Plants retain their Leaves in Winter, they make an agreeable Variety amongst other Exotic Plants in the Stove. They may be propagated by Layers, when the Plants are strong enough to send forth good Shoots; for as they do not produce Seeds in this Country, it will be difficult to obtain them from Abroad. The best Time to lay down the Shoots, is in *April*, when you should give them a Hot-bed, which will greatly forward their making of Roots, especially if they are duly watered. But they will not have Roots enough to transplant before the next Spring.

LEPIDIUM, Dittander or Pepperwort.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross, from whose Cup arises the Pistillum, which afterward becomes a spear-shaped

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shaped Fruit, which is divided in the Middle by a Partition into two Cells, which contain many oblong Seeds.

The Species are ;

1. *LEPIDIUM latifolium. C. B. P.* Common broad-leav'd Dittander, or Poor-man's Pepper.

2. *LEPIDIUM humile incanum arvense. Inst. R. H.* Low hoary Dittander, or Pepperwort.

3. *LEPIDIUM gramineo folio, five Iberis. Inst. R. H.* Grass-leaved Dittander, or Scitica Crefs.

4. *LEPIDIUM humile, minus incanum, Alepicum. Inst. R. H.* Low greener Dittander of Aleppo.

5. *LEPIDIUM capillaceo folio, fruticosum Hispanicum. Inst. R. H.* Shrubby Spanish Dittander, with very narrow Leaves.

6. *LEPIDIUM orientale, nasturtii crispifolium. Tourn. Cor.* Eastern Dittander, with a curled cress Leaf,

7. *LEPIDIUM orientale, nasturtii folio, caule vesicario. Tourn. Cor.* Eastern Dittander, with a cress Leaf, and a swelling Stalk.

8. *LEPIDIUM orientale, caryophylli folio. Tourn. Cor.* Eastern Dittander, with a Clove-gilly-flower Leaf.

The first and third Sorts are directed by the College of Physicians to be used in Medicine. The first grows wild in some Parts of England, but is generally cultivated in Gardens for Use. The Herb and Root of this Sort were formerly used in Sauce, to give a warm biting Taste thereto ; and some poor People have mixed a few of the Leaves in their Sallets, for the same Purpose. This Sort is easily propagated, by planting any small Pieces of the Root, either in Spring or Autumn, after the manner directed for Horse-radish ; but it should be placed in some odd Corner of the Garden, and not near other Plants, because the Roots

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will spread and shoot up at a great Distance, so as to over-run the Ground where it is planted.

The third Sort may be propagated by Seeds, which should be sown in the Spring ; and when the Plants are come up, they should be thinned, so as to leave them eight or ten Inches asunder, and keep them clear from Weeds ; which is all the Culture they require. The second Year*the Plants will produce Seeds, and the old Roots will remain several Years, provided they are not in too rich Ground. The Leaves and Seeds of this Plant are used in Medicine.

The second and fourth Sorts are trailing Plants, which propagate very fast by their creeping Roots : these are preserved in Botanic Gardens for Variety, but there is little Beauty in them.

The fifth Sort was discovered by Doctor Tournefort in Spain. This grows shrubby, and will abide the Cold of our ordinary Winter in the open Air, provided it is planted on a poor dry Soil. It may be propagated either by Seeds or Cuttings.

The other three Sorts were discovered by Doctor Tournefort in the Levant, from whence he sent their Seeds to the Royal Garden at Paris. These are also preserved in Botanic Gardens for the sake of Variety, and may be easily propagated by Seeds.

LEPIDOCARPODENDRON.

We have no English Name for this Genus.

The Characters are ;

It hath a large scaly Flower-cup, in which are included many Florets, some of which are apetalous, and appear like Hairs, and others are Hermaphrodite ; from the middle of the Flowers arises the Ovary, which is inclosed in a Sheath : the Seeds have

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have long Plumes like Feathers adhering to them.

The Species are ;

1. *LEPIDOCARPODENDRON folio saligno lato, caule purpurascete. Boerb.* Lepidocarpodendron with a broad willow Leaf, and a purplish Stalk.

2. *LEPIDOCARPODENDRON foliis angustis longis salignis, nervo rubro, florum plumis violaceo-purpureis. Boerb.* Lepidocarpodendron with long narrow willow Leaves, having a red Vein, and the Plumes of the Flowers of a violet-purple Colour.

3. *LEPIDOCARPODENDRON foliis angustissimis graminis, fructu cancellato, semine coronato. Boerb.* Lepidocarpodendron with very narrow grass Leaves, a hooded Fruit, and a crowned Seed.

There are several other Sorts of these Trees, which naturally grow in the Country near the Cape of Good Hope, from whence those here mentioned were brought into the European Gardens ; where they are preserved by the Curious to add to the Variety in the Green-house.

These Plants may be propagated in the same manner as hath been directed for Conocarpodendron, and the Plants may also be treated as those ; wherefore it will be needless to repeat it in this Place.

LEUCANTHEMUM, Ox-eye Daizy.

The Species omitted in the former Volumes, are ;

1. *LEUCANTHEMUM montanum, foliis chrysanthemi. Inst. R. H.* Mountain Ox-eye Daizy, with cornmarygold Leaves.

2. *LEUCANTHEMUM gramineo folio. Inst. R. H.* Grass-leaved Ox-eye Daizy.

3. *LEUCANTHEMUM latissimo folio, flore maximo. Inst. R. H.*

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Broadest-leaved Ox-eye Daizy, with a large Flower.

4. *LEUCANTHEMUM Lusitanicum, argenteo laciniato folio. Inst. R. H.* Portugal Ox-eye Daizy, with a silver jagged Leaf.

5. *LEUCANTHEMUM Americanum frutescens, foliis latis conjugatis asperis, flore albo, capitulis squamosis. Houst.* Shrubby American Ox-eye Daizy, with broad rough Leaves growing opposite, a white Flower, and a scaly Cup.

The four first-mentioned Sorts are hardy Plants, which will live in the open Air in England : they may be propagated by sowing of their Seeds on a Bed of light fresh Earth, in the Beginning of March ; and when the Plants begin to appear, they should be carefully clear'd from Weeds, and in very dry Weather they should be refreshed with Water, which will greatly promote their Growth. When they are about two Inches high, they should be transplanted into Beds, at about eight Inches Distance, observing to water them until they have taken new Root, after which time they will require no other Care, but to keep them clear from Weeds, till the Autumn following, when they should be transplanted into the large Borders of the Pleasure-garden, where they are designed to remain : in which Places they will afford an agreeable Variety, when intermixed with other hardy flowering Plants, and will abide a long time.

The fifth Sort was discovered by the late Doctor William Houstoun at Campechy, from whence he sent the Seeds into Europe, whereby many Gardens have been stored with this Plant. This Sort being a Native of a warm Country, will not live in this Climate, unless it is placed in a Stove in the Winter : but in the Middle

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Middle of Summer, it will abide the open Air in a warm Situation, and will thrive better at that Season Abroad, than if it were kept in the Stove; because the Leaves of this Plant are very subject to contract Filth, and Insects lodge upon them, whereby the Plants are rendered unsightly, and seldom thrive. This Sort may be propagated by Cuttings during the Summer Months, which should be planted in Pots filled with fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken Root, and give them plenty of Water: and when the Cuttings are rooted, they should be placed in the open Air in a warm Situation, where they may remain until the latter End of *September*, when they should be removed into the Stove; observing to let them have a large Share of fresh Air in the Day-time, while the Weather continues moderate; but as the Cold increases, so they should be secured therefrom. These Plants, requiring but a moderate Warmth in Winter, should be placed with the more hardy Stove-plants, and will need to be often refreshed with Water. With this Management, the Plants will grow eight or ten Feet high, and add to the Variety in the Stove.

LICHEN, Liverwort.

There being two Sorts of this Plant, which are used in Medicine, and one of those being accounted a sovereign Remedy for the Bite of Mad-dogs, I thought it would not be improper to mention them here, tho' they are Plants which cannot be propagated by any Method, except by paring up the Turf of Grass whereon they grow, and laying it down in some moist shady Place, where, if the Turf takes Root and

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thrives, these Plants will spread and do well. The two Sorts are;

1. LICHEN *petraeus latifolius*, five *Hepatica fontana*. C. B. P. Common broad-leav'd Liverwort.

2. LICHEN *terrestris cinereus*. *Raii Syn.* Ash-coloured ground Liverwort.

The first Sort grows on the Sides of Wells, and in moist shady Places, not only on the Ground, but on Stones, Bricks or Wood. Of this there are several Varieties, which are distinguished by the Curious in Botany; but as they are Plants of no Use, I shall not enumerate them here.

The second Sort (which is used to cure the Bite of Mad-dogs) grows on Commons, and open Heaths, where the Grass is short, in most Parts of *England*, especially on Declivities, and on the Sides of Pits. This spreads on the Surface of the Ground, and when in Perfection, is of an Ash-colour; but as it grows old, it alters, and becomes of a Dark-colour. This is often carried into Gardens with the Turf which is laid for Walks and Slopes; and where the Soil is moist and cool, it will spread, and be difficult to destroy; so that it renders the Grass unsightly: but this is the only Method yet known to have it grow in Gardens, where it is desired.

This is esteemed a sovereign Remedy for the Bite of Mad-dogs, and hath been for many Years used with great Success. It was communicated to the Royal Society, by Mr. *George Dampier*, whose Uncle had long used this Plant, to cure the Bite of Mad-dogs, on Men and Animals, with infallible Success. The Method of taking it he has delivered as followeth: Take of the Herb, and dry it either in an Oven, by the Fire, or in the Sun; then powder it, and pass

pass it thro' a fine Sieve ; mix this with an equal Quantity of fine powdered Pepper ; the common Dose of this Mixture is four Scruples, which may be taken in warm Milk, Beer, Ale, or Broth. He also adviseth the Part bitten to be well washed, as also the Cloaths of the Person who is bit, lest any of the Snivel or Drivel of the Mad-dog, should remain. If the Person bitten be full-grown, he adviseth that he be blooded, before the Medicine is taken ; and to use the Remedy as soon after the Bite is possible, as also to repeat the Dose two or three several Mornings fasting.

LIGUSTRUM, Privet.

The *Species* omitted in the former Volumes, are ;

1. *LIGUSTRUM Capense semper-virens, folio crasso subrotundo. Hort. Elth.* Ever-green Privet of the Cape of Good Hope, with a thick roundish Leaf.

2. *LIGUSTRUM Ægyptiacum, Albenna vel Alcanna Arabum. Jess.* Egyptian Privet, called Alhenna or Alcanna by the Arabians.

3. *LIGUSTROIDES, quod Ligustrum Americanum aculeatum, fructu testiculato. Plum.* Prickly American Privet, with testiculated Fruit.

The first Sort is a Native of the Cape of Good Hope, from whence it was brought into the Gardens in Holland, where it hath been propagated and communicated to several Parts of Europe. This Plant, being pretty hardy, may be preserved in a common Green-house, with Oranges, Myrtles, &c. where it will make an agreeable Variety. It may be propagated by laying down the tender Shoots, which will take Root in one Year, and may then be transplanted into small Pots filled with fresh light Earth, observing to water and shade them until they have

taken new Root ; after which time, they may be treated in the same manner as Myrtles, or any other hardy Exotic Plant, which requires to be housed in Winter.

The second Sort grows plentifully in Egypt, and some other Places in the East, from whence the Seeds have been sent to Europe, and many of the Plants have been raised, which proved so tender, that few of them have been preserved. The Leaves of this Tree dried and powdered, are a great Merchandise throughout the Turkish Empire, and the neighbouring Countries, where it is used to dye the Hair and Nails of the Inhabitants of a yellow Colour.

This Sort may be propagated by Seeds, which should be sown early in the Spring on a Hot-bed ; and when the Plants are come up, they should be transplanted into separate small Pots filled with fresh rich Earth, and plunged into a Hot-bed of Tanners Bark, where they must be treated after the same manner as the young Coffee Trees, and must be constantly preserved in the Stove ; for they are too tender to thrive in the open Air in this Climate, even in the warmest Season of the Year.

The third Sort was discovered by Father Plumier in America ; the Seeds of this Plant were sent into England by the late Dr. William Houstoun, who gathered them at Campechy. This Sort is tender, and requires to be preserved in Stoves, during the Winter Season ; otherwise it will not live in this Country.

This Sort will grow to the Height of ten or twelve Feet in this Country ; and being more hardy than the former, will thrive in the open Air during the Summer-months, provided it is placed in a warm Situation ; and in Winter it may be placed in a Stove with Plants, which require

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require only a moderate Warmth to preserve them. This Plant must be frequently watered; for it grows naturally on moist swampy Soils, near the Sea. These may be both propagated by laying down their Branches in the Spring, which if duly watered, will be rooted by the next Spring, when they may be taken off, and transplanted into Pots filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, which will greatly promote their taking new Root; but they must be watered and shaded, until they are rooted; then they may be treated in the same manner as the old Plants.

LILIO-ASPHODELUS, Lily-Asphodel.

To this Article must be added;

1. LILIO-ASPHODELUS *Americanus semper-virens maximus polyanthos albus*. Hort. Elth. Greatest evergreen American Asphodel-lily, with many white Flowers.

2. LILIO-ASPHODELUS *luteus minor*. Inst. R. H. The lesser yellow Asphodel-lily.

3. LILIO-ASPHODELUS *phoeniceus minor*. Inst. R. H. The lesser red Asphodel-lily.

4. LILIO-ASPHODELUS *Americanus, flore umbellato albo, costâ purpureâ notato*. Plum. Cat. American Asphodel-lily, with white Flowers growing in an Umbel, and a Stalk marked with Purple.

5. LILIO-ASPHODELUS *Americanus, foliis scillæ, flore umbellato maximo purpureo*. Plum. Cat. American Asphodel-lily, with Leaves like the Squill, and large purple Flowers growing in an Umbel.

6. LILIO-ASPHODELUS *Americanus bifolius, flore singulari purpureo*. Plum. Cat. American Lily-asphodel, with two Leaves, and a single purple Flower.

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The first, fourth, fifth and sixth Sorts, being Natives of the warm Parts of America, must be preserved in Stoves, otherwise they will not live thro' the Winter in this Country. These may be propagated very easily, for their Roots creep under Ground, and send forth many new Plants at a Distance from the old Root, which should be taken off in the Spring, and each Plant put into a pretty large separate Pot, filled with rich light Earth, and then plunged into a moderate Hot-bed of Tanners Bark, to forward their taking new Root: they must also be frequently refreshed with Water, but it must not be given in large Quantities, especially until they have taken good Root, lest it should rot the tender Fibres.

These Plants thrive and produce their Flowers plentifully in England, when they are constantly kept plunged in the Bark-stove; for the Fibres of the Roots will frequently creep thro' the Holes at the Bottom of the Pots, and strike into the Bark, which is of great Service to the Plants. During the Winter Season, when they are not very free in Growth, they should not have too much Water; but in Summer they will require to have plenty of Water in hot Weather. When the Pots are filled with the Roots, they should be taken out and divided to propagate them; the best Time for this is, when the Leaves are in the least vigorous State, which is generally in March. When these Roots are parted, it should be done with Care, so as not to break or bruise the larger Roots: for those bruised are very subject to rot. These Plants should not be shifted out of the Pots too often, for that will prevent their Flowering; for where the Roots are confined, (provided it be not too much) they will always

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always flower most freely ; so that they need not be transplanted oftener than once every Year.

In Summer, when the Weather is hot, these Plants should have a large Share of free Air, by opening of the Glassies of the Stove ; but they should never be placed abroad in the open Air, for they are too tender to thrive abroad in this Climate in the warmest Seasons. These Plants usually flower in *June, July* and *August*, tho' sometimes they will flower both earlier and later in the Year : and when they are in Flower, they afford an agreeable Scent, and make a fine Appearance.

The second and third Sorts are very hardy Plants, which will thrive in almost any Soil or Situation, and greatly increase by their Roots. These are to be managed in the same manner as hath been directed, in the former Volumes of the *Gardeners Dictionary*, for the two larger Sorts ; wherefore I shall not repeat it here.

LILIO HYACINTHUS, Lily-Hyacinth.

The Characters are ;

It hath a lily Flower, which is composed of six Leaves, and shaped like the Flower of Hyacinth ; whose Pointal afterward becomes a globular pointed Fruit, for the most part three-cornered, and divided into three Cells, in which are contained many Seeds, which are almost round. To these Notes must be added, the Roots, which are scaly, and shaped like those of the Lily.

The Species are ;

1. LILIO-HYACINTHUS *vulgaris*, *flore cœruleo*. *Inst. R. H.* Common Lily-Hyacinth, with a blue Flower.

2. LILIO-HYACINTHUS *vulgaris*, *flore niveo*. *Inst. R. H.* Common Lily-Hyacinth, with a snow-white Flower.

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3. LILIO-HYACINTHUS *vulgaris*, *flore rubello*. *Inst. R. H.* Common Lily-Hyacinth, with a red Flower.

These Plants are propagated by Off-sets from their Roots, in the same manner as Lilies and Crown Imperials ; the best time to take up their Roots is in *July*, soon after the Leaves are decayed. These Roots may be dried in a shady Place, and kept out of the Ground till *Michaelmas* ; when they should be planted in the Borders of the Flower-garden, amongst other hardy bulbous and tuberosc-rooted Flowers, where they will make a pretty Diversity the following Spring, when they are in Flower.

They will thrive in almost any Soil, which is not over-moist, or too strong Clay, and in almost any Situation which is open, and not shaded by Trees. The Roots should be planted four or five Inches deep, and where they are planted in a Bed by themselves, should be placed about a Foot Distance from each other : but as they are very hardy, and do not require any Covering, they are very proper for adorning the large Borders of the Flower-garden.

The Roots may remain in the Ground undisturbed two or three Years, which is a better Method to obtain a large Increase of their Roots, than if they are removed every Year. When the Roots are taken up and dried, the Off-sets should be intirely separated from the old Roots ; and those which are small, must be soon planted again in a Nursery-bed at about five or six Inches Distance, where they may remain for a Year or two, until they have acquired Strength to flower ; when they may be transplanted into the Borders of the Flower-garden. The Off-sets being small, must never remain long out of the Ground, because they are subject

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subject to shrivel; and then, if they are planted, and there should happen much Rain soon after, they will perish. These Plants flower the latter End of *April*, or the Beginning of *May*, when they make a pretty Appearance, their Flowers being in Shape like the Starry Hyacinth.

These Plants may also be propagated by Seeds, which should be sown in Pots or Cases filled with fresh light Earth, soon after they are ripe; and must be treated in the same manner as hath been directed for the Lilies and Martagons in the former Volumes of the *Gardeners Dictionary*. The Plants raised from Seeds will not flower, until they are four or five Years old, which discourages most People attempting to propagate them by that Method; though if it was more practised, there might be a greater Variety of these Flowers, than are at present to be found, since it was by this Method that the great Variety of curious Flowers now in being were obtained.

LILIO-NARCISSUS, Lily-Daffodil.

To this *Article* must be added;

1. LILIO-NARCISSUS *Jacobæus latifolius Indicus, rubro flore. Mor. Hist.* Broad-leaved Indian Lily-Daffodil, with a red Flower.

2. LILIO-NARCISSUS *Indicus maximus sphaericus, floribus plurimis rubris liliaceis. Mor. Hist.* Greatest Indian Lily-Daffodil, with many lily-shaped spherical Flowers.

3. LILIO-NARCISSUS *Indicus pumilus polyanthos. Mor. Hist.* Dwarf Indian Lily-Daffodil, with many Flowers.

4. LILIO-NARCISSUS *Zeylanicus latifolius, flore niveo externè lineâ purpurâ striato. Mor.* Broad-leaved Lily-Daffodil of *Ceylon*, with a snow-

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white Flower, striped with purple Lines on the Out-side.

5. LILIO-NARCISSUS *Indicus pumilus monanthes albus. Mor. Hist.* Dwarf Indian Lily-Daffodil, with one white Flower.

6. LILIO-NARCISSUS *luteus vernalis. Inst. R. H.* Yellow spring Lily-Daffodil.

7. LILIO-NARCISSUS *luteus autumnalis major. Inst. R. H.* Greater yellow autumnal Lily-Daffodil, commonly called Autumnal Narcissus.

8. LILIO-NARCISSUS *luteus multiplex autumnalis. Inst. R. H.* Autumnal yellow Lily-Daffodil, with double Flowers.

9. LILIO-NARCISSUS *Bæticus luteus minor odoratissimus. Inst. R. H.* Lesser yellow Lily-Daffodil of *Bætica*, with very sweet Flowers.

The first, second, third and fourth Sorts, are very tender Plants, and require to be placed in a warm Stove, otherwise they will not abide the Winter in this Climate; these are propagated by Off-sets from their Roots, because they rarely produce good Seeds in *Europe*. The best time to transplant the Roots, and to take the Off-sets from them, is in the Spring, before they put out new Leaves. These Roots should be planted in Pots filled with fresh light sandy Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to refresh them gently in warm Weather; but they should not have too much Moisture, for that will rot the Roots, especially when they are newly transplanted, or at a Season when they are not in Action. The best Method to increase the Roots, and to have them flower strong and constantly, is to keep the Pots continually plunged in the Bark-bed in the Stove; for when they are placed on Benches in the Stove, the extreme Fibres of the Roots, which

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are at the Bottom and Sides of the Pots, are never well nourished; wherefore do not flower so constantly or strongly as those which are plunged in the Bark. In hot Weather these Plants should have a large Share of fresh Air, by opening of the Glasses of the Stove; but in cold Weather they must be kept warm, otherwise the Roots will decay. These Plants do not flower regularly at any Season of the Year; for sometimes they will flower in the Spring, and at other times late in the Summer, or in Autumn; so that the time of transplanting of their Roots should be varied according to the time of their Flowering; for those which flower in the Spring, commonly drop their Leaves about *August*, when it is a proper time to transplant them; whereas those which flower in Autumn, will not drop their Leaves until the middle of Winter. Therefore these must not be removed until the middle or latter End of *March*; so that whenever their Leaves are decayed, and the Roots appear to be inactive, they may safely be transplanted, provided it be not in the middle of Winter. These Plants produce very beautiful Flowers, and are worthy of a Place in every good Stove, there being very few Exotic Plants, which make so fine an Appearance as these, when they are in Flower.

The fifth Sort is much more hardy than any of the former, but will not abide the Cold of our Winters in *England*, if planted in the open Air: so that this Sort should be treated in the same manner as hath been directed for the *Guernsey* and *Belladonna* Lilies, in the former Volumes of the *Gardeners Dictionary*. This Sort is also propagated by Off-sets from the Roots, but it increases slowly in this Country.

The sixth, seventh, eight and ninth

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Sorts, will thrive in the open Air in this Country; but the seventh Sort is the only common Kind in *England*: the others are preserved by some few People, who are curious in collecting uncommon Flowers. These are all propagated by Off-sets, for they seldom produce Seed in *England*. The best time to transplant the autumnal Kinds is in *July*, when their Leaves are intirely decayed; but their Roots should not be kept long out of the Ground; for they always begin to shoot out new Fibres in *August*, and in *September* they produce their Flowers; so that coming so late in the Season, they are the more esteemed, because there are not a very great Variety of more beautiful Flowers then in Perfection. These Plants are of humble Growth, and are proper to intermix with *Colchicums*, Autumnal *Crocus's*, and *Cyclamens*, in some of the Borders of the Flower-garden, where they will make a pretty Appearance for about a Month in the Autumn Season.

They will thrive in almost any Soil or Situation, provided it be not too wet; for too great Moisture in Winter, lying long near their Roots, will rot them, because at that Season they are in the greatest Vigour; for after the Flowers are past, their green Leaves continue growing most Part of the Winter; and as the Warmth comes on in the Spring, their Leaves decay.

The Sort which flowers in the Spring, should not be transplanted so soon as the others; for the Leaves of this do not decay till toward the middle of *July*, so that these Roots should be transplanted in *August*. This requires an East or South-East Border; for if they are planted too much in the Shade, they will not flower so well, as when they have a more open or warm Situation. The
Roots

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Roots of all these Sorts should remain untransplanted two or three Years; for if they are removed every Year, they will not flower near so strong, nor produce so great Increase, as when they remain undisturbed: but then the Surface of the Borders in which they are planted, should be cleaned from Weeds, and gently stirred, when the green Leaves are decayed, and a little fresh Earth spread over the Borders, which will greatly encourage the Roots, and cause them to flower strong.

LILIUM, Lily.

To this Article must be added;

1. *LILIUM purpureum minus, flore pleno.* C. B. P. Lesser red Lily, with a double Flower.

2. *LILIUM cruentum polyanthos.* Hort. Eyst. Fiery Lily with many Flowers.

3. *LILIUM bulbiferum latifolium majus.* C. B. P. Greater broad-leav'd bulb-bearing Lily.

4. *LILIUM bulbiferum minus.* C. B. P. Smaller bulb-bearing Lily.

5. *LILIUM floribus reflexis, montanum, flore albicante.* C. B. P. The Martagon with a whitish Flower.

6. *LILIUM floribus reflexis, montanum, flore maculis rubris inordinatis asperso.* The Martagon with Flowers spotted inordinately with red.

7. *LILIUM floribus reflexis, montanum, flore carneo.* H. R. Par. The pale-red or flesh-coloured Martagon.

8. *LILIUM floribus reflexis, montanum, longiore spicâ.* C. B. P. The Martagon with a long Spike of Flowers.

9. *LILIUM floribus reflexis variis, fove tertium.* C. B. P. The striped Martagon.

10. *LILIUM floribus reflexis, polyanthos album punctatum.* C. B. P.

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The white spotted Martagon, with many Flowers.

11. *LILIUM Byzantinum serotinum.* Hort. Eyst. The late-flowering Martagon of Constantinople.

12. *LILIUM floribus reflexis, Americanum maximum, flore rubente, serotinum.* The greatest American late-flowering Martagon, with red Flowers.

The first, second and third Sorts of Lily are not very common in the English Gardens at present, but some Years since they were in greater Plenty; for as the Taste for Gardening has greatly changed in England of late Years, few People have been curious enough to preserve many of the good old Flowers; but have been fond of introducing new Kinds, which are not so beautiful as many of the old ones, which they turned out to make room for the new Species. These Sorts are sometimes found in some old Country Gardens, which have not been torn to pieces, from whence some few Persons have retrieved them. In Holland they are more curious in preserving all the Kinds of bulbous and tuberose-rooted Flowers, than in most other Parts of Europe; so that they have a great Variety of these old Flowers in their Gardens.

The fourth Sort is pretty common in several Gardens near London: this may be increased very fast, by planting of the small Bulbs, which come out upon the Stalks between the Leaves, which will soon become strong Roots for flowering; but these Bulbs should not be taken off, until the Stalks are beginning to decay.

The fifth, sixth, seventh, eighth, ninth, tenth and eleventh Sorts of Martagon deserve a Place in every curious Flower-garden, for the Variety of their Flowers. These are

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all preserved by the curious Florists in *Holland*, but are not very common in the *English* Gardens.

The twelfth Sort was sent from *Pensylvania* (where it grows in the Woods) to Mr. *Peter Collinson*, who has a great Variety of these curious Flowers in his Garden at *Peckham*.

They are all hardy Plants, and require very little Care, to preserve them, which renders them more valuable. The manner of propagating them having been exhibited in the former Volumes of the *Gardeners Dictionary*, I shall not repeat it here.

LINARIA, Toad-flax.

To this *Article* must be added ;

1. *LINARIA segetum, nummulariæ folio villoso. Inst. R. H.* Corn Toad-flax, with a hairy Money-wort-leaf, commonly called *Fluellin* or *Female-speedwel*.

2. *LINARIA segetum, nummulariæ folio aurito & villoso, flore luteo. Inst. R. H.* Corn Toad-flax, with a hairy eared Money-wort-leaf, and a yellow Flower.

3. *LINARIA pumila vulgatio arvensis. Inst. R. H.* Common low annual Toad-flax.

4. *LINARIA hederaceo folio glabro, seu Cymbalaria vulgaris. Inst. R. H.* Toad-flax with a smooth Ivy-leaf, commonly known by the Name of *Cymbalaria*.

5. *LINARIA quadrifolia lutea. C. B. P.* Four-leav'd yellow Toad-flax.

6. *LINARIA annua angustifolia, flosculis albis longius caudatis. Triumphet.* Narrow-leav'd annual Toad-flax, with small white Flowers, having long Tails or Spurs.

7. *LINARIA quadrifolia supina. C. B. P.* Trailing four-leav'd Toad-flax.

8. *LINARIA capillaceo folio, odora. C. B. P.* Sweet-smelling Toad-flax, with a very narrow Leaf.

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9. *LINARIA orientalis, flore luteo maximo. Tourt. Cor.* Eastern Toad-flax, with a very large yellow Flower.

10. *LINARIA latifolia triphylla, flore purpureo magno, rictu aureo. Inst. R. H.* Broad three-leav'd Toad-flax, with a large purple Flower having a golden Standard.

11. *LINARIA annua angustifolia, flore majore luteo. Mor. Hist.* Narrow-leav'd annual Toad-flax, with a larger yellow Flower.

The first Sort here mentioned, is directed by the College of Physicians, to be used in Medicine ; this stands in their Catalogue of Simples under the Title of *Elatine*. This and the second Sort grow wild amongst the Corn, in divers Parts of *England*. They are both annual Plants, which scatter their Seeds, where-ever they are permitted to grow, and the young Plants generally come up in Autumn ; so that they are more frequently to be met with amongst Wheat, Rye, and other Crops which are sown in Autumn, than in such Lands as are ploughed in the Spring. The Flowers of these Plants are very small, and come out at the Joints close to the Foot-stalks of the Leaves, and the whole Plant trails on the Ground ; they usually flower in *June*, and their Seeds are ripe in *August*.

The third Sort is a low annual Plant, which is very common on arable Land in most Parts of *England* ; but is seldom admitted into Gardens.

The fourth Sort was originally brought from abroad, but is now become so common in many Parts of *England*, as to be thought a Native by some Persons. This has been esteemed a Plant very efficacious in some Distempers, but is not used by any of the *English* Physicians at present.

sent. It grows not only on the Ground, but on Walls, Pales, or whatever Place the Seeds fall; therefore it becomes a very troublesome Weed, where-ever it is suffered to seed.

The other Sorts are not Inhabitants of this Country; but are by the Curious preserved in their Gardens, for the Variety of their Flowers. They are all of them Plants of short Duration, seldom continuing after they have perfected their Seeds; so that where the Seeds are not permitted to scatter, they should be sown every Year, in order to preserve the Kinds. The Seeds should be sown in the Places where they are designed to remain; for the Plants do not thrive so well, when they are transplanted. Some of these Seeds may be sown in the Autumn, on a dry Soil, where the Plants will come up, and abide the Winter; and these will flower much sooner the following Year, than those which are sown in the Spring; so that good Seeds may be certainly obtained from those, whereas the Seeds of some Sorts do not ripen well in bad Seasons on such Plants which come up from the Spring-sowing. But by sowing at the two Seasons, there will be a longer Continuance of the Plants in Flower.

As these Plants require no farther Care, when they come up, but to thin them where they grow too close, and to keep them clear from Weeds; they may be allowed Room in the Borders of large Gardens, where they will add to the Variety; for they are Plants which do not spread far, therefore may be kept in proper Compass; and the different Colours of their Flowers will make a pretty Appearance amongst other hardy Plants.

LIPPIA.

This Plant was so named by the late Dr. *William Houstoun*, who discovered it at *La Vera Cruz*, in Honour to Dr. *Augustus Lippi*, a famous Botanist, who travelled to *Egypt*, and discovered many new Plants.

The Characters are;

It hath an anomalous Flower, consisting of one Leaf, which is divided into four Parts, and rests on the Embryo, which afterwards becomes the Fruit, having two Seeds, which are inclosed in a small Covering.

We know but one Species of this Plant at present; viz.

LIPPIA arborescens, foliis conjugatis oblongis, capitulis squamosis & rotundis. Houst. Tree Lippia, with oblong Leaves growing by Pairs, and having round scaly Heads.

This Plant, in the Country of its native Growth, commonly rises to the Height of eighteen or twenty Feet, and hath a rough Bark: the Branches come out by Pairs opposite, as also the Leaves, which are oblong, pointed, and a little sawed on their Edges. From the Wings of the Leaves come out the Foot-stalks, which sustain many round scaly Heads, about the Size of a large grey Pea, in which are many small yellow Flowers appearing between the Scales, which are succeeded by the Seed-vessels.

The Seeds of this Plant were sent to several curious Gardens in *Europe*, where some of the Plants have been raised; but as the Climate which it came from, is very warm, the Plants will not thrive in this Country, unless they are preserved in a warm Stove. These may be treated in the same manner as the other shrubby Plants, which are Natives of warm Countries; which is, to keep them always in the Stove, plunged in the

Bark-bed, observing to give them a large Share of Air in warm Weather, and frequently refresh them with Water; but in Winter they must be watered more sparingly, and be kept in a moderate Degree of Warmth; otherwise they will not live through the Winter, especially while they are young; but when they have acquired Strength, they may endure a less Share of Warmth.

As the Plants advance in their Growth, they should be shifted into larger Pots; but this should not be too often repeated; for if they are removed into new Pots every Spring, it will be as often as they require; so that when these, and many other Exotic Plants, are too often removed, they do not thrive so well as when they are permitted to fill the Pots with their Roots. The best time to shift these Plants is in *April*, at which time the Tan of the Hot-bed should be stirred, and fresh Tan mixed with it, to increase the Heat. The Earth in which these Plants are planted, should be fresh and light, but not too rich.

LOBELIA.

The *Characters* are;

It hath a tubulous anomalous Flower, consisting of one Leaf, which is divided into many Parts, each being shaped somewhat like a Tongue, and are spread open like a Hand; this is inclosed in the Cup, which afterward becomes a soft oval Fruit, which is full of Juice, and surrounds a Nut of the same Shape, which has a hard Shell.

We know but one Sort of this Plant; viz.

LOBELIA frutescens, portulacæ folio. Plum. Nov. Gen. Shrubby Lobelia, with a Purslane-leaf.

This Plant was named by Father *Plumier*, who discovered it in *Ame-*

rica, in Honour to Dr. *Lobel*, a learned Botanist, who published the Figures of a great Number of Plants at *Antwerp* in 1581. and two or three other Books of Botany before that time.

The Seeds of this Plant were sent to *England* by Mr. *Catesby* in the Year 1724. who gathered them in the *Bahama* Islands, where the Plants grow in Plenty, near the Shore of the Sea; and since that time the Seeds have been sent to *England* by Dr. *William Houstoun*, who gathered them at *La Vera Cruz*, so that I believe the Plant is common in most of the warm Parts of *America*.

It is propagated by Seed, which must be procured from the Countries of its natural Growth; for the Plants will not produce them in *Europe*. These Seeds should be sown in Pots, filled with light sandy Earth, and then plunged into a Hot-bed of *Tanners Bark*, where the Plants will come up in about three Weeks, provided the Bed is kept warm, and the Earth often watered. When the Plants are come up, they should have fresh Air admitted to them in very warm Weather; but if the Nights should prove cold, the Glasses of the Hot-bed should be covered every Night with Mats, to keep the Bed in a proper Temperature of Heat; the Plants should also be frequently refreshed with Water, but it must not be given in large Quantities to them; for they are very succulent, and subject to perish with much Moisture, especially while they are young. When the Plants are about two Inches high, they should be carefully taken out of the Pots in which they were sown, and each planted in a separate small Pot, filled with fresh light sandy Earth, and then plunged into the Hot-bed again, observing to shade them

them in the Heat of the Day, until they have taken new Root; after which time, the Glasses of the Hot-bed should be raised every Day to admit fresh Air to the Plants, in proportion to the Warmth of the Season. They must also be frequently refreshed with Water. In this Hot-bed the Plants may remain, until the middle or latter End of September, when they must be removed into the Stove; and plunged into the Tan-bed in the warmest Part of the Stove; for they are very tender Plants while young, and must be kept very warm, otherwise they will not live through the Winter in this Country. They must also be frequently refreshed with Water, but it must be given to them sparingly during the Winter Season; for a little too much Moisture will rot them at that Season. In the Spring following, the Plants may be shifted into a little larger Pots, and then plunged into a fresh Hot-bed to forward their Growth; for if they are not pushed on while they are young, they seldom grow to any Size, nor will they ever flower; so that in order to have these Plants in any Beauty, they must be carefully managed. The Height to which these Plants usually grow, is five or six Feet, and they divide into several Branches, which are succulent, as are also the Leaves, which are as thick and full of Moisture, as those of Purslane, and being ever-green, the Plants make an agreeable Diversity amongst other tender Exotic Plants in the Stove; for they are too tender to be removed into the open Air in this Country, even in the warmest Season of the Year. The Leaves of this Plant are very subject to contract Filth, by being kept constantly in the Stove; therefore they should be washed with a Sponge every Month, to keep them clean, otherwise they will appear unsightly.

LUFFA, Egyptian Cucumber.

The Characters are;

It hath a bell-shaped Flower, consisting of one Leaf, which is divided into five Parts to the Centre: there are Male and Female Flowers on the same Plant; the Male Flowers are produced on short Foot-stalks, having no Embryo's: but the Female Flowers rest on the Top of the Embryo, which afterward becomes a Fruit like a Cucumber to outward Appearance, but is not fleshy, the Inner-part consisting of many Fibres, which are elegantly netted; and there are three Cells, which are filled with Seeds, which are almost of an oval Shape.

We have but one Sort of this Plant; viz.

LUFFA Arabum. Tourn. The Luffa of the Arabians.

This Plant may be propagated after the same manner as Cucumbers and Melons, by sowing of the Seeds on a Hot-bed the Beginning of March; and when the Plants are come up, they must be pricked into a fresh Hot-bed to strengthen the Plants, observing to let them have fresh Air every Day in warm Weather, and to refresh them frequently with Water; but it must not be given to them in large Quantities while they are young, or in cold Weather, lest it destroy the Plants. When the Plants have four or five Leaves, they should be planted out on a Hot-bed, where they are designed to remain, which should be under Frames, and but one Plant put into each Hole; for as these Plants send forth a great Number of Side-shoots, so where they are planted too close, they will entangle one into the other, and become so thick, as to cause the Fruit to drop. In the Management of these Plants after they are planted out for good, there must be the same Care taken as for Melons and Cucumbers, with this Difference

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only, that these require a larger Share of Air in warm Weather; otherwise the Vines will grow weak, and will not produce Fruit.

When the Plants have spread, so as to fill the Frames on every Side, the Frames should be raised on Bricks, and the Ends of the Plants drawn out, that they may have room to grow; for when these Plants are in a vigorous State, they will spread eight or ten Feet; so that if they are confined, they will become so thick, as to rot the tender Branches which are covered from the Air, and there will be no Fruit produced.

The Fruit, when it is young, is by some People eaten, and made into Mangoes, and preserved in Pickle; but it hath a very disagreeable Taste, and is not accounted very wholesome: wherefore it is seldom cultivated in Europe, except by such Persons as are curious in Botany, for Variety.

LYCOPERSICON, Love-Apple.

To this Article must be added;

1. LYCOPERSICON *fructu rubro non striato*. Inst. R. H. Love-Apple with a smooth red Fruit.

2. LYCOPERSICON *fructu albo*. Inst. R. H. Love-Apple with a white Fruit.

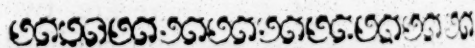
3. LYCOPERSICON *Americanum arborescens, amplissimis foliis angulatis*. Plum. Cat. American tree-like Love-Apple, with large angular Leaves.

The two first Sorts are annual Plants, which perish soon after they have perfected their Fruit. These must be sown in the Spring on a moderate Hot-bed to bring them forward, and afterward treated in the same manner as those Sorts which are mentioned in the former Volumes of the Gardeners Dictionary.

The third Sort will rise to the Height of six or eight Feet, and become woody. This Sort is propa-

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gated by Seeds, which should be sown on a Hot-bed in the Spring; and when the Plants are come up about two Inches high, they must be transplanted into a moderate Hot-bed, observing to water and shade them until they have taken new Root; after which time they should have a large Share of free Air in warm Weather, to prevent their drawing up weak. When the Plants have obtained a good Share of Strength, they should be carefully taken up with Earth to their Roots, and planted into Pots filled with light rich Earth, and placed in a shady Situation until they have taken Root; when they may be removed into a warm Situation, where they may remain abroad in the open Air, until the middle or End of September, when they must be removed into the Conservatory, and placed where they may have a moderate Share of Warmth in cold Weather; by which Method the Plants may be preserved through the Winter, and the following Summer they will produce Fruit.



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MANIHOT, Cassavi or Cassada.

The Characters are;

It hath a short spreading bell-shaped Flower, consisting of one Leaf, which is cut into several Parts, whose Pointal afterward becomes a roundish Fruit, composed of three Cells, which are joined together, in each of which is contained one oblong Seed. To these Notes should be added; Male Flowers, which have no Pointal, growing round the Female, which fall off, and are never fruitful.

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The Species are ;

1. MANIHOT *Therveti juca* & *Cassavi*. J. B. Inst. R. H. The common Cassavi or Cassada.

2. MANIHOT *spinosissima, folio vitigineo*. Plum. Cat. The most prickly Cassavi, with a chaste-tree Leaf.

3. MANIHOT *arborescens minus spinosa, floribus albis umbellatis, foliis aconiti urentibus*. Houst. Tree-like less prickly Cassavi, with white Flowers growing in Umbels, and a stinging wolfsbane Leaf.

4. MANIHOT *frutescens non spinosa, foliis glabris & minus lacinia-tis*. Houst. Shrubby Cassavi without Prickles, and smooth Leaves, which are less divided.

5. MANIHOT *ulmi folio ampliore*. Plum. Cat. Cassavi with an ample Elm-leaf.

6. MANIHOT *ulmi folio angustiore*. Plum. Cat. Cassavi with a narrow Elm-leaf.

The first Sort is cultivated in all the warm Parts of *America*, where the Root is ground to Flour, after being divested of its Juice; and then is made into Cakes, which are used for Bread. Of this there are two Sorts, which are not distinguished by the Botanists; one of which, viz. the most common, hath purplish Stalks, and the Veins of the Leaves are also of a purplish Colour; but the Stalks of the other are green, and the Leaves are of a lighter green Colour. The last of these Sorts is not venomous, even while the Roots are fresh, and full of Juice; for the Negroes frequently dig up the Roots, and after roasting of them, they eat them in the same manner as Potatoes, without any ill Effects. This Sort is known by the Spaniards, who call it *Camanioc*; but this being more light and spongy than the common Sort, and requiring a longer Time to

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grow to Maturity, it is planted by few People in *America*.

The Cassada is propagated by Cuttings, which the Inhabitants of *America* plant, at their rainy Seasons; these Cuttings are taken from those Plants, whose Roots are grown to Maturity, for Use. The Cuttings are generally about fifteen or sixteen Inches in Length, and are planted a Foot or fourteen Inches deep in the Ground, leaving about two or three Inches of the Cutting above the Surface. The Land in which this is planted, must be well wrought, and cleansed from the Roots of noxious Weeds; then there should be a Trench opened cross the Ground about a Foot deep, in which the Cuttings should be placed at about a Foot Distance from each other, leaving a small Part of each Cutting above the Surface: then the Earth should be filled into the Trench again, and gently pressed with the Feet about each Cutting, to prevent the Sun and Air from penetrating of the Ground, which would dry the Cuttings too much, and prevent their taking Root. These Trenches should be made about three Feet asunder, that there may be room to hough between the Rows to extirpate the Weeds, which, if permitted to grow, will soon over-bear the Plants, and destroy them. The Cuttings should not be planted immediately after they are taken from the old Plants, but should be laid to dry in a shady Place for two Days; for as they abound with a milky Juice, so, if the Part where they are cut, be not healed over, they will be subject to rot, as is the Case with most milky Plants.

When the Cuttings have taken Root, they require no farther Care, but to keep them clear from Weeds; and in about eight or nine Months time,

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time, the Roots will have grown to Maturity, which in good Ground will be as large as the Calf of a Man's Leg, but commonly as large as good Parsnips, if the Ground be tolerably good. Then the Ground must be opened about each Plant to take up the Roots intire, and pare off their Skins; then they throw them into a Tub of Water, and wash them well; after which they rasp them on a coarse Rasp, to reduce them to a rough Flour like Saw-dust; then they press out all the Juice with a Press, and afterward it is fit for Use.

In *Europe* these Plants are preserved by many Persons, who are curious in collecting of rare Plants; but they will not thrive, unless they are kept in Stoves; for they are all of them very tender Plants. The second Sort is only propagated by Seeds, which must be procured from the Places of its natural Growth, for it never produces good Seeds in this Country.

The Seeds of this Sort were sent into *England* by the late Dr. *William Houstoun*, who gathered them on the Sands near *Vera Cruz* in the *Spanish West-Indies*, where it grows in great Plenty; it was also found at *Campechy* by Mr. *Robert Millar* Surgeon. This Kind seldom rises above eighteen Inches or two Feet high, and the Stalks, Leaves, and every Part of the Plant, are closely beset with strong Prickles; so that it is difficult to touch them, without receiving an Injury from the Spines. At the Top of the Shoots, there are some white Flowers, which are produced in an Umbel, some of which are Male, having many Stamina or Threads in each; but the Female Flowers rest on the Embryo's, which afterward become the Fruit.

The third Sort was also discovered

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by the late Dr. *William Houstoun* near *La Vera Cruz*: this grows to the Height of twelve or fourteen Feet; the Trunk of this becomes woody, and divides at the Top into many Branches, which are beset with Leaves, in Shape like those of *Wolfbane*; these are armed with small Spines, which sting like those of the *Nettle*. The Flowers of this Kind are white, and grow in an Umbel on the Top of the Branches, and are produced throughout the whole Year. This Sort may be propagated by Cuttings in the same manner as the first.

The fourth Sort is somewhat like the wholesome Kind, but is not found in any of our Settlements: this was found in the Island of *Cuba*, by the late Dr. *Houstoun*. All these Sorts have large tuberose Roots, which abide some Years, and may be preserved by the Curious. When the Kinds are obtained from abroad, they must be planted in Pots filled with fresh light Earth, which is not over-rich, and they should be plunged in the Bark-bed in the Stove; where, during the Summer Season, they should have a large Share of fresh Air admitted to them, by opening of the Glasses in warm Weather, and they must be frequently refreshed with Water; but in Winter they must be kept very warm, and should be watered more sparingly, especially if the Plants die down to the Root, which the second Sort is very apt to do in Winter in this Country; at which time Moisture will rot their Roots, while they are in an unactive State.

When the Seeds of these Plants are procured from abroad, they should be sown in Pots filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing frequently to water the Earth, in order to promote

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promote the Vegetation of the Seeds; and when the Plants are come up two Inches high, they should be transplanted each into a separate Pot filled with fresh light Earth, and plunged into the Hot-bed again, being careful to shade them from the Sun, until they have taken fresh Root; after which time they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season, and they must be frequently refreshed with Water. In this Hot-bed the Plants may remain during the Summer Season, but at *Michaelmas* they must be removed into the Stove, and treated after the manner as was before directed.

The Seeds of these Plants very often prove abortive, having a fair outer Covering; but when broken have no Germ within, so that very few of them grow; therefore it is proper to put them into Water, and take only such for sowing, as sink to the Bottom of the Vessel; for all those which swim on the Surface of the Water, are bad Seeds.

MANURE.

There are many different Kinds of Manure, which are now commonly used in different Parts of *England*, for enriching of the several Soils: but these having been treated of in the former Volumes of the *Gardeners Dictionary*, and being pretty generally known, I shall not repeat them in this Place; but proceed to take Notice of some other Kinds of Manure, which are at present neglected by most People, though they might be used with equal Success on many Lands, as most of those now commonly in Use.

Oak-bark, after the Tanners have used it for tanning of Leather, when laid in a Heap and rotted, is an excellent Manure, especially for stiff cold Land, in which one Load of

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this Manure will improve the Ground more, and last longer, than two Loads of the richest Dungs; and yet it is very common to see large Heaps of this remaining in the Tanners Yards for Years, in several Parts of *England*, where Manure of other Kinds is very scarce. Of late Years this Tan has been much used for Hot-beds in several Parts of *England*, and is found to exceed Horse-dung greatly for that Purpose, the Fermentation being moderate, and of long Continuance; so that a Bed of Tan, when rightly made, will continue in a moderate Temperature of Heat for five or six Months; and when the Heat begins to decay, if it be stirred up with a Dung-fork, and some fresh Tan added to it, the Heat will renew again, and last for some Months; so that these Beds are by far the most kindly for Exotic Plants; and whatever Plants are plunged into them, if they are permitted to root through the Bottom of the Pots, and strike into the Tan, they will thrive more in one Month, than they did in four Months, while they were confined to the Pots. I have frequently observed many Kinds of Plants, which have rooted through the Pot into the Tan, and have sent forth Roots upward of twelve Feet each way, in less than three Months, and the Plants have advanced in Proportion; which is a plain Indication, that Plants are greatly nourished by the rotten Tan. After the Tan hath been used for a Hot-bed, I have spread it on the Ground for Manure, and have found it has greatly enriched the Ground; but it is much better for cold strong Land, than for light hot Ground, because it is of a warm Nature, and will loosen and separate the Earth; so that where this Manure hath been used three or four times, it hath made the Land very loose,

loose, which before was strong, and not easy to be wrought. When this Manure is laid on Grass, it should be done soon after *Michaelmas*, that the Winter Rains may wash it into the Ground; for if it is laid on in the Spring, it will burn the Grass, and instead of improving it, will greatly injure it for that Season. Where it is used for Corn-land, it should be spread on the Surface, before the last Ploughing, that it may be turned down for the Fibres of the Corn to reach it in the Spring; for if it lies too near the Surface, it will forward the Growth of the Corn in Winter; but in the Spring, when the Nourishment is chiefly wanted to encourage the Stems, it will be nearly consumed, and the Corn will receive little Advantage from it. But it is not proper to have this Manure lie too near the Plants; for when this has happened, I have frequently observed it prejudicial to most Plants, but especially to bulbous and tuberose rooted Flowers, which are very subject to rot, where it lies near their Roots; yet when it is buried just deep enough for the Fibres of their Roots to reach it in the Spring, the Flowers have been exceedingly improved by it. And in some Places, where this Manure hath been used in Kitchen-gardens, it hath greatly improved the Vegetables; so that it is to be wondered, that this should not be employed on the Land in every Country where it can be obtained.

Rotten Vegetables of most Sorts do also greatly enrich Land, so that where other Manure is scarce, these may be used with great Success. The Weeds of Ponds, Lakes or Ditches, being dragged out before they seed, and laid in Heaps to rot, will make excellent Manure, as will most other Sorts of Weeds; but where-ever any of these are employed, they should

be cut down as soon as they begin to flower; for if they are suffered to stand until their Seeds are ripe, the Land will be stored with Weeds, which cannot be destroyed in two or three Years; nay, some Kinds of Weeds, if they are permitted to stand so long as to form their Seeds, will perfect them after they are cut down, which may be equally prejudicial to the Land; therefore the surest Method is to cut them down just as they begin to flower, at which time most Sorts of Vegetables are in their greatest Vigour, being then stronger, and fuller of Juice, than when their Seeds are farther advanced; so that at that time they abound most with Salts, and therefore are more proper for the intended Purpose. In rotting of these Vegetables, it will be proper to mix some Earth, Mud or any other such-like Substance, with them, to prevent their taking Fire in their Fermentation, which they are very subject to, where they are laid in large Heaps without any other Mixture to prevent it; and it will be proper to cover the Heaps over with Earth, Mud or Dung, to detain the Salts, otherwise many of the finer Particles will evaporate in fermenting. When these Vegetables are thoroughly rotted, they will form a solid Mass, which will cut like Butter, and be very full of Oils, which will greatly enrich the Land.

In such Places where there are neither Ponds, Lakes or Ditches, to supply these Weeds, and the Situation being far from the Sea, (from whence also may be obtained many Sorts of Weeds for this Purpose) there may be many Sorts of Vegetables sown, in order to plough them into the Grounds, when they are full-grown, to enrich the Land: at present, those chiefly used for this Purpose are Buck-wheat, Vetches
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and Spurry. And in some Countries abroad, they commonly sow Lupines upon such Land as they want to improve; and when they are full-grown, they mow them down, and plough them into the Ground, which they esteem to be a good Manure. This is chiefly used in the South of *France* and in *Italy*, where some of the Sorts of Lupines grow naturally; but these are not proper for this Climate, because if the Season should prove cold or wet, after the Lupines are sown, they will rot in the Ground; so that it is very hazardous to sow them in this Country; and there being many other Sorts of Plants, which are hardy, and grow to a much larger Size with us than Lupines, should be preferred to them for this Purpose. I have known some Land sown pretty thick with Horse-beans, which have been mowed down when they were in Blossom, and ploughed in for a Crop of Wheat, and it hath largely repayed the Owner. Almost any of the Pulse Kind which grow large, are very proper to be sown for this Purpose; and, next to these, may be sown Mustard, Cole-seed, or any of these large growing Plants, which, if cut before they form their Seeds, and ploughed in, will greatly enrich the Ground.

The Refuse of Kitchen-gardens, when laid in Heaps and rotted, will also afford a good Sort of Manure for Corn-land; but as this is not to be obtained in any Quantity, excepting near great Cities; so in such Places Dung being also to be had pretty reasonable, the other will not be much sought after.

I have lately been informed of another Improvement, which may be of great Use in several Parts of the Kingdom; which is the mowing down of Fern, while it is green and tender, and laying it in Heaps to rot, which

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will make an excellent Manure for Land; and as this is a most troublesome Plant in many Parts of *England*, so, by frequently mowing of it, it may be destroyed; and when rotted, a good Quantity of Manure may be obtained, which will more than defray the Charges of cutting it down. In some Places, where no Tan or Horse-dung can be obtained, they have cut down Fern, and chopped it pretty small, and laid it in an Heap to ferment; then have used it for Hot-beds, for which Purpose it has answered extremely well. The first Person who informed me of this, was Mr. *Samuel Brewer*, a very curious Person in Gardening, who made several Hot-beds of Fern, which, he says, continued their Heat for many Months; so that he prefers it to Tan, or any other Sort of Dung, where a moderate lasting Heat is required.

There are many other Kinds of Weeds, which infest the Land in many Parts of *England*, which, if cut down at a proper time, and laid to rot, might be used to great Advantage for manuring of Land; and hereby the Weeds would in time be destroyed, and the Manure would more than pay the Expence of doing it; but few Persons who are employed in Husbandry, care to go out of their old beaten Road to try Experiments, even where they are attended with little Expence, and nothing hazarded; otherwise there is great room to make many Improvements of this Kind, especially in Countries where Dung or other common Manure is very scarce; in which Places, if some Experiments were properly made of rotting whatever Vegetables could be procured in the Neighbourhood, a great Improvement of the Land might be effected.

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The Ashes of all Kinds of Vegetables are also an excellent Manure for Land; so that where the Ground is over-run with Bushes, Brambles, &c. which are woody, if they are grubbed up in Summer, and spread abroad to dry for a little time, then gently consumed to Ashes, and these spread on the Land, it will greatly improve it. The Method for doing this is already explained under the Article of *Land*.

Rotten Wood, and Saw-dust when rotted, is a very good Manure for Land, because it loosens the Parts of the Earth, and renders it light.

Bones, Horns, and other Parts of Animals, do also enrich Land greatly, as do decayed Fish; so that in some Places where these can be easily obtained, a great Improvement may be made of them.

Sea-sand and Shells are in several Parts of *England* used to great Advantage, especially in *Devonshire*, where they are at the Expence of fetching the Sand and Shells on Horses Backs, twelve or fourteen Miles. The Land on which they lay this Manure, is a strong Loam, inclining to Clay; so that this separates the Parts and the Salts which are contained in the Shells and Sands, being proper for Vegetation, which is a very great Improvement of their Land. Coral and such Kinds of stony Plants which grow on the Rocks, are filled with Salts which are very beneficial to Land; but as these Bodies are hard, the Improvement is not the first or second Year after they are laid on the Ground; because they require time to pulverise them before their Salts can mix with the Earth to impregnate it. Therefore Dressings of this Kind are seldom used by Tenants, who want to reap the Fruit of their Labour as soon as possible. But these Manures are much better

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for cold strong Land, than for that which is light and sandy. In some Countries, at a great Distance from the Sea, have been discovered great Quantities of Fossil Shells, which have been dug out of the Earth, and used as Manure, which have improved the Ground: but these are not near so full of Salts, as those Shells which are taken from the Shore; therefore where the latter can be obtained, they are to be preferred to the former.

Where the Land lies near the Sea, so that either Sand, Shells, Corals, Wrecks or Sea Weeds, can be obtained at an easy Expence, they are by far the best Kinds of Manure, because they enrich the Land for several Years; for as their Salts are closely locked up, they are communicated by Degrees to the Land, as the Heat and Cold causes the Bodies to pulverise, and fall into small Parts: so that where Sand and the smaller Kinds of Sea Weeds are used, if they are laid on the Land in proper Quantities, they will enrich it for six or seven Years; but Shells, Corals, and other hard Bodies, will continue many Years longer.

In dunging of Land, I have frequently observed in several Parts of *England*, but especially in *Cambridgeshire*, a very wrong Practice; for the Dung is laid on the Land before Midsummer, and spread abroad perhaps a Month or six Weeks before the Ground is ploughed; in which time the Sun exhales all the Goodness of the Dung, so that what remains is of little Service to the Land. Therefore when Dung or any other soft Manure is used, it should not be laid on the Ground until the last time of ploughing, when it should be buried as soon as possible, to prevent the Evaporation of the Salts. Indeed where

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where Shells, Corals, or any other hard Substances, are used for Manure, if these are spread abroad some Months before the Ground is ploughed, the Sun, Rain, or Frost, will cause them to pulverise, much sooner than when they are buried and excluded from the Air.

MARANTA, *Indian Arrow-root.*

The Characters are ;

It hath a Flower consisting of one Leaf, which is almost funnel-shaped, opening in six Parts, three of which are alternately larger than the other. The lower Part of the Flower-cup afterward becomes an oval-shaped Fruit, consisting of one Cell, in which is one hard rough Seed.

The Species are ;

1. MARANTA *arundinacea, canna-cori folio.* Plum. Nov. Gen. Reed-like *Indian Arrow-root*, with a Leaf like the flowering Reed.

2. MARANTA *cannacori folio, flore minimo albo.* Houst. *Indian Arrow-root*, with a Leaf like the flowering Reed, and the least white Flower.

The first Sort was discovered by Father Plumier in some of the French Settlements in America, who gave it the Name in Honour to one Bartholomew Maranta an antient Botanist. The Seeds of this Kind were sent to Europe by the late Dr. William Houstoun, who found the Plant growing in Plenty near La Vera Cruz in New Spain.

The other Sort was brought from some of the Spanish Settlements in America, into the Islands of Barbadoes and Jamaica, where it is cultivated in their Gardens as a medicinal Plant, it being a sovereign Remedy to cure the Bite of Wasps, and to expel the Poison of the Manchineel-tree. The Indians apply the Root to expel the Poison of their Arrows, which they use with great Success. They take

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up the Roots, and after cleansing them from Dirt, they mash them, and apply it as a Poultice to the wounded Part; which draws out the Poison, and heals the Wound. It will also stop a Gangreen, if it be applied before it is gone too far, so that it is a very valuable Plant.

These Plants, being Natives of a warm Country, are very tender, and will not live in this Country, unless they are preserved in Stoves. They may be propagated by their creeping Roots, which should be parted in the middle of March, just before they begin to push out new Leaves. These Roots should be planted in Pots filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing now-and-then to refresh them with Water; but it must not be given to them in large Quantities; for too much Moisture will soon rot the Roots, when they are in an unactive State. When the green Leaves appear above Ground, the Plants will require more frequently to be watered, and they should have free Air admitted to them every Day, in proportion to the Warmth of the Season, and the Heat of the Bed, in which they are placed. As the Plants advance in Strength, they should have a greater Share of Air; but they must constantly remain in the Stove plunged in the Tan, otherwise they will not thrive; for when the Pots are placed on Shelves in the Stove, the Moisture passes too soon from the Fibres, which generally are spread to the Sides and Bottoms of the Pots, so that the Plants do not receive much Nourishment from the Water. But where they are constantly kept in the Tanners Bark, and have proper Air and Moisture, they will thrive, so as from a small Root to fill the Pot in which it was planted, in one Summer. About Michaelmas
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the first Sort will begin to decay, and in a short time after the Leaves will die to the Ground; but the Pots must be continued all the Winter in the Bark-bed, otherwise the Roots will perish; for although they are in an unactive State, yet they will not keep good very long, when taken out of the Ground; and if the Pots are taken out of the Tan, and placed in any dry Part of the Stove, the Roots often shrivel and decay; but when they are continued in the Tan, they should have but little Water given them, when their Leaves are decayed, lest it rot them. This first Sort doth flower constantly in *July* and *August*, and many times will produce ripe Seeds in *England*; but the second Sort doth not flower so constant, nor do the Flowers appear so conspicuous, being very small, and of a short Duration. This Sort never hath produced any Seeds in *England*, nor could I ever observe any Rudiment of a Seed-vessel succeeding the Flower. The green Leaves abide on this Sort most Part of the Winter, seldom decaying till *February*, and sometimes will continue green until fresh Leaves come up, and thrust the old ones off; in which Particular there is a more remarkable Difference between the two Sorts, than can be observed in the Face of the Plants.

MARTYNIA.

This Name was given by the late Dr. *William Houstoun* to this Genus of Plants, which he discovered in *America*, in Honour to his Friend Mr. *John Martyn*, Professor of Botany at *Cambridge*.

The Characters are;

It hath an anomalous Flower consisting of one Leaf, which is divided into two Lips: the upper Lip is erect, and slightly cut into two Parts; but the under is cut into three Parts, the

middle Segment being larger than the other two. The Flower is succeeded by a Fruit having a strong thick Covering, in which is included a very hard Nut, having two crooked Horns at one End; and in the Nut are included four Seeds lodged in so many separate Cells.

The Species are;

1. MARTYNIA *annua villosa & viscosa, folio subrotundo, flore magno rubro. Houst.* Annual hairy viscous Martynia, with a roundish Leaf, and a large red Flower.

2. MARTYNIA *annua villosa & viscosa, aceris folio, flore albo, tubo longissimo. Houst.* Annual hairy viscous Martynia, with a maple Leaf, and a white Flower, having a very long Tube.

3. MARTYNIA *perennis, folio subrotundo rugoso, flore cæruleo, radice dentariæ. Linn.* Perennial Martynia, with a rough roundish Leaf, a blue Flower, and a tooth-wort Root.

The first of these Plants was discovered by the late Dr. *William Houstoun*, near *La Vera Cruz* in *New Spain*, from whence he sent the Seeds into *England*, which succeeded very well in the Physic-garden at *Chelsea*; and in the Year 1731. several of these Plants were raised, which produced their beautiful Flowers, and perfected their Seed; from whence several Plants were raised the succeeding Year.

The second Sort was discovered by the same curious Gentleman in the Year 1733. near *Carthagena* in *New Spain*, from whence he sent dried Samples of the Plant, with some of the Seeds, to *England*; but they did not succeed.

The Seeds of the third Sort were sent from *Carthagena* by Mr. *Robert Millar*, Surgeon, from which some of the Plants were raised in the Gardens of Mr. *George Clifford* of *Amsterdam*.

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sterdam; where they have flowered, but have not produced any Seeds in *Europe*. This Sort increases greatly by its Roots, which creep under Ground, so as to fill the Pots in which they are planted, in one Season.

The two first Sorts being annual Plants, are only propagated by Seed, which should be sown in Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark; where (if the Earth is duly watered to promote the Vegetation of the Seed) the Plants will appear in about a Fortnight, or three Weeks, and will grow pretty fast, if the Bed is warm: wherefore they should be transplanted soon after they come up, each into a separate Pot, filled with light rich Earth, and then plunged into the Hot-bed again, observing to water them well, as also to shade them from the Sun, until they have taken new Root; after which time they should have a large Share of fresh Air admitted to them in warm Weather, by raising of the Glasses of the Hot-bed every Day, with Bricks or Stones, and the Plants must be frequently watered. With this Management the Plants will make great Progress, so as to fill the Pots with their Roots in about a Month's time; when they should be shifted into Pots, about a Foot Diameter at the Top, which should be filled with light rich Earth, and then plunged into the Hot-bed in the Bark-stove, where they should be allowed room, because they put out many Side-branches, and will grow three Feet high and more, according to the Warmth of the Bed, and the Care which is taken to supply them constantly with Water. About the middle of *July*, the Plants will begin to shew their Flowers, which are produced in a Spike from the Top of

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the Plants, which, of the first Sort, are like those of the Foxglove. As the first Spike of Flowers decays, they are succeeded by Spikes from all the Side-branches; so that the Plants continue in Flower until *Michaelmas* or later, if the Season proves favourable: but it is only from the first Spike of Flowers that good Seeds can be expected in this Country; so that particular Care should be taken, that none of those are pulled off or destroyed; because it is very difficult to obtain good Seeds in *England*; and I believe few of those which are produced on the Side-branches in the natural Climate of their Growth, are duly ripened; for I have received a great Quantity of these Seeds from abroad, which have appeared to be very good, and yet few of them have produced Plants.

The Seeds of these Plants have a strong green Covering over them, as thick as the outer Covering of an Almond; and when the Seeds are ripe, the Covering opens, and lets the Seed fall, in the same manner as the Covering of Almonds, Walnuts, &c. In each Covering there is one hard Nut, in Shape somewhat like a Beetle, having two sharp crooked Horns at one End. This Nut contains four Embryo's; but there are seldom more than two Seeds which are perfect in any of them. However when they are sown, the whole Nut must be planted; for it is so hard, that it is impossible to take out the Seeds without spoiling of them; and where there are two Plants produced from the same Nut, they are easily separated, when they are transplanted. These Seeds will continue good for the Space of some Years; for I saved a pretty large Quantity of them in the Year 1734, Part of which I sowed the following Year, but had not one Plant produced; the

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Remainder of the Seeds I divided, and sowed some of them every succeeding Year, without Success, until the Year 1738, when I sowed all the Seeds I had left, from which I had one Plant produced: so that if the Seeds are good, it is evident they will grow when they are four Years old. Therefore whenever we receive good Seeds from abroad, or save any in this Country which are perfectly ripened, it will be proper to preserve some of them for a Year or two, lest a bad Season should happen, when the Plants may not perfect their Seeds; so that if this Precaution be not taken, the Species may be lost in *Europe*.

The third Sort dies to the Root every Winter, and rises again the succeeding Spring; this must be constantly preserved in the Stove, and plunged into the Bark-bed, otherwise it will not thrive in this Country. During the Winter Season, when the Plants are decayed, they should have but little Water given to them; for Moisture at that time will rot the Roots. In the Beginning of *March*, just before the Plants begin to shoot, is the proper Season to transplant and part the Roots; when they should be planted into Pots of a middle Size, filled with light rich Earth, and then plunged into the Bark-bed, which should at this time be renewed with fresh Tan. When the Plants come up, they must be frequently refreshed with Water; but it must not be given to them in large Quantities, lest it rot their tender Roots; and as the Warmth of the Season increases, it will be proper to admit a large Share of fresh Air, which will greatly strengthen the Plants; but they must constantly remain in the Stove, otherwise they will not produce Flowers in this Country. The Time of their Flow-

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ering is in the End of *July*, and in *August*; and in *October* the Plants die to their Roots.

MELILOTUS, Melilot.

The Species omitted in the former Volumes, are;

1. MELILOTUS *corniculis reflexis, major. C. B. P.* Greater Melilot, with reflected Horns.

2. MELILOTUS *corniculis reflexis, minor vel repens. C. B. P.* Smaller creeping Melilot, with reflexed Horns.

3. MELILOTUS *Italica, foliulis rotundis. C. B. P.* Italian Melilot, with round Leaves.

4. MELILOTUS *angustifolia repens, foliulis rotundis. C. B. P.* Narrow-leav'd creeping Melilot, with round smaller Leaves.

5. MELILOTUS *lutca minor, floribus & filiculis minoribus, spicatum & dense dispositis. Mor. Hist.* Smaller yellow Melilot, with smaller Flowers and Pods, growing in a thick Spike.

6. MELILOTUS *Messanenensis procumbens, foliulis rugosis sublongis, spicis florum brevibus. Raii Syn.* Trailing Melilot of *Messina*, with rough oblong Leaves, and short Spikes of Flowers.

7. MELILOTUS *Cretica humillima humifusa, flore albo magno. Tourn. Cor.* Low Melilot of *Crete*, with a large white Flower.

8. MELILOTUS *capsulis reni similibus, in capitulum congestis. Tourn.* Melilot Trefoil or Nonefuch.

The six first-mentioned Sorts are annual Plants, which grow wild in the South of *France*, and in *Italy*, from whence the Seeds of them have been procured by such Persons as are curious in Botany. These Sorts are all of them preserved in Botanic Gardens for Variety, but they are Plants of no great Beauty, nor are they used in Medicine. But if there were

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were Trials made of some of the Kinds, I believe they might be found useful to sow for feeding of Cattle, as the last Sort here mentioned is at present in divers Parts of *England*, which was the Reason of my enumerating these Sorts here. For as some of the other Sorts are very hardy, and will grow on almost any Soil, so if they are found to be equally good with the Nonesuch, they may be better worth cultivating, because they are of much larger Growth; and consequently will produce much more Fodder on an Acre of Land, than that will. But as I have had no Opportunity of trying if Cattle will eat any of them, I cannot recommend them, but by way of Trial, to such Persons who are curious in making these Sorts of Improvement.

As these are annual Plants, their Seeds must be sown every Year; or if they are permitted to scatter when ripe, the Plants will come up in Autumn, and will abide the Winter's Cold very well in this Country; and those Plants which come up in the Autumn, will grow much larger than those which are sown in the Spring, and will more certainly produce good Seeds. Therefore those Persons who are curious to preserve their Kinds, should either sow them in Autumn soon after the Seeds are ripe, or permit them to scatter their Seeds; and the self-sown Plants may be easily transplanted, where they are designed to grow; and they will require no farther Care, but to keep them clear from Weeds. They will all of them grow on almost any Soil; but they will thrive better on dry light sandy Soil, than on a stiff clayey Ground.

The seventh Sort is an abiding Plant, which rarely produces Seeds in this Country, and is propagated by parting of the Roots in the Spring.

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This Sort is not so hardy as the others; therefore some of the Plants should be preserved in Pots, that they may be removed into Shelter in Winter; for very hard Frosts will destroy them, if they are exposed. But they must always have as much free Air as possible in mild Weather; so that if they are placed under a common Hot-bed Frame in Winter, where the Glasses may be drawn off every Day in mild Weather, and only covered in hard Frost, the Plants will thrive much better than where they are placed in a Green-house. In Summer the Plants must be frequently watered in dry Weather, and kept clear from Weeds, which is all the Culture they require.

The Nonesuch which is now cultivated in the open Fields in several Parts of *England*, is an Inhabitant of this Kingdom, growing wild by the Sides of Paths, and on arable Land, in great Plenty every-where near *London*; and if the Seeds are permitted to scatter, there will be a Supply of Plants to stock the Ground, so that it often becomes a very troublesome Weed in Gardens, and is difficult to extirpate after it hath gotten Possession.

The Seeds of this Plant are sown in the Spring, either alone, or with Barley, the latter of which I should recommend; for as this is a low trailing Plant, it will not injure the Barley, which will get forward before the Nonesuch comes up; and if there doth not arise a great Crop of the Nonesuch, yet being permitted to stand until the Barley is ripe, the Seeds of the Nonesuch will be ripe, and most of it scattered, by that time; and after the Corn is taken off, the Rains in Autumn will soon bring up the Plants, which will flourish all the Winter, and the Spring following will afford an early Feed for Cattle.

Where this Plant is sown by itself, it must not be fed or mowed, until the Seeds are ripe; for as it is an annual Plant, so where it is eaten, or cut down, the Roots will perish; and if there is not a Supply of young Plants to succeed them, the Crop will be destroyed in one Season. Indeed, as these Plants begin to flower very young, and near their Roots, so before the Seeds are formed at the Extremity of the Shoots, those produced near the Root will be ripe and scattered, from whence young Plants will come up, and supply the Crop; which has deceived some Persons, who have thought this Plant will abide two or three Years, and produce several Crops from the same Roots; which is a great Mistake, for the Root perishes annually. But as the Plants produce such Quantities of Seed, at almost every Joint of the Stalks, it is almost impossible to destroy the Crop totally, if the Plants are permitted to grow to any Size, before they are fed or cut down.

The Seeds of Nonesuch being smaller than Clover Seed, a less Quantity will sow an Acre. If it is sown by itself, there should be ten Pounds allowed to an Acre; but if it is sown with Barley, six Pounds will be sufficient. When it is sown with Barley, the Barley should be first sown and harrowed, and then the Seeds of the Nonesuch should be sowed, and the Land rolled, which will bury this Seed deep enough.

MELOCACTUS, Melon Thistle.

To this Article must be added;

1. MELOCACTUS *Americanus major, spinis albis longissimis recurvis.* The greater American Melon Thistle, with very long white crooked Spines.

2. MELOCACTUS *Americanus major, striis in spiram intortis, spinis brevibus aduncis.* Greater American Melon Thistle, with spiral Ribs, and short crooked Spines.

3. MELOCACTUS *Americanus major, spinis tenuibus flavescens.* Greater Melon Thistle, with slender yellowish Spines.

4. MELOCACTUS *Mexicanus, spinis creberrimis corallinis latis & recurvis.* Houst. Melon Thistle of Mexico, with broad flat crooked Spines.

The three first Sorts I have received from the English Settlements in America, where I doubt not there are several other Varieties, if they were examined by Persons skilful in Botany. These are generally older before they put out their Caps on their Tops, than the common Sort; for I have had two of the Sorts five or six Years in England, which have increased in their Magnitude greatly since I received them; but neither of them has any Tendency to put out Caps, though some of the common Sort, not near so large, have produced large Caps, and have ripened their Fruit. So that I am in Doubt whether some of these Sorts ever produce Caps in the natural Places of their Growth; for they may produce their Fruit, either from the Sides of the Plant, as the small American Sort, or round the Centre of the Head, as I have seen some of them represented in Figures.

The fourth Sort was brought from Mexico, by the late Dr. William Houstoun; but being a long time in the Passage, and the Plants receiving some Wet, they all of them were decayed before they arrived in England. This is one of the most strange Plants of this Genus I ever saw; the Spines, which are produced very closely all over the Plant, are two Inches or more in Length, and near a quarter of an Inch broad at their Base; are extremely strong, and of a brownish red Colour; these the Inhabitants of Mexico make use

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of to pick their Teeth, from whence they give the Name of *Visnaga*, i. e. Tooth-pick, to these Plants.

As these Plants are esteemed by the Curious, for their singular Structure, being so very different from all the *European* Plants, most People who have the Conveniency of Stoves to preserve them, are extremely curious to obtain them from abroad; but the Persons who have the Care of bringing them, for want of Judgment, generally destroy them with Water, before they arrive in *England*: for although they often arrive in seeming Health, yet the Moisture which they have imbibed in their Passage, will rot them in a little time after they are planted. Therefore, whenever these Plants are brought over planted in Tubs, the best way is to take them up as soon as they arrive, and set them upon the Flues in the Stove to dry; where (if they arrive early in the Summer) they may remain two Months before they are planted; but when they come late in the Year, they should remain on the Flues all the Winter; and about the Beginning of *April*, they may be planted in Lime-rubbish (as hath been directed in the former Volumes of the *Gardeners Dictionary*); and these Plants will more certainly succeed, than those which are planted soon after they arrive, as I have several times experienced. Some of these Plants I have kept dry out of Earth, on the Flues, or in some dry warm Part of the Stove, nine Months, and have then planted them; and they succeeded better than those which were planted soon after I received them, though they were to Appearance not near so likely to live. So that if those Gentlemen who bring over these Plants, would take them out of the Ground, and hang them up in a dry warm Part of the

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Ship, where they might not be bruised or eaten by Vermin; they will more certainly succeed, than those Plants which are brought over in Tubs of Earth.

The smaller Melon Thistle, which was some Years since very rare in *England*, is now become pretty common in the Gardens of the Curious: for as they produce a great many Fruit annually, they may be propagated in great Quantities by Seed; nay, if the Seeds are permitted to fall on the Earth, in the Pots where the old Plants are growing, the young Plants will come up in great Abundance, so that a Person may be soon stocked with them.

MENISPERMUM, Moon-feed.

The Characters are;

It hath a rosaceous Flower, consisting of several small Leaves, which are placed round the Embryo in a circular Order. The Pointal, which is divided into three Parts at the Top, afterward becomes the Fruit or Berry, in which is included one flat Seed, which is, when ripe, hollowed like the Appearance of the Moon.

The Species are;

1. MENISPERMUM *Canadense scandens, hederaceo folio.* Acad. Reg. Scien. 1706. Climbing Canady Moon-feed, with an Ivy-leaf.

2. MENISPERMUM *Canadense scandens, umbilicato folio.* Acad. Reg. Scien. 1706. Climbing Canady Moon-feed, with an umbilicated Leaf.

3. MENISPERMUM *folio hederacea.* Hort. Elth. Ivy-leaved Moon-feed.

The first and second Sorts have been long Inhabitants of the *European* Gardens. These produce flexible woody Shoots from their Roots, which twist round whatever Plants stand near them, and will grow to the Height of ten or twelve Feet,

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and produce their Flowers in Autumn, but they rarely perfect their Seed in this Country.

These Plants are Natives of *Virginia*, and most of the Northern Parts of *America*, from whence they were many Years since brought into *Europe*, and were preserved in the Green-houses in Winter, as tender Plants; but of late Years they have been planted in the full Ground, where they endure the Winter's Cold extremely well without any Shelter. They may be easily propagated by the Suckers, which are produced in Plenty from their Roots: these should be taken off with some Fibres adhering to them, in the Spring, before the Plants make new Shoots; and may be planted where they are designed to remain, observing to water them, if the Season should prove dry, until they have taken Root; after which time they will require no farther Care, but to keep them clear from Weeds, and to support them with Stakes, unless they are planted near Trees, round which they may fasten themselves; for if they trail on the Ground, they will not thrive.

The third Sort was brought from *Carolina* by Mr. *Catesby*. This is a Plant of humbler Growth than either of the former, seldom rising above four or five Feet high in this Country, and the Stems do not become woody. The Leaves are also much smaller than either of the other Sorts. This Plant will endure the Cold of our ordinary Winters very well in the open Air, provided it is planted in a warm Soil, and a sheltered Situation. It may be propagated by Suckers from the Root, as the two former Sorts, which are also produced in as great Plenty.

The two former Sorts were by Dr. *Plukenet* ranged amongst the Ivies,

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from some Similitude in the outward Appearance of the Plants to the Ivy. So, from his Name, they were commonly called in the Gardens, Ivy with a bind-weed Leaf.

MENTZELIA.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed in a circular Order, and rest on the Flower-cup, which afterward becomes a membranaceous tubulous Fruit, containing many small Seeds.

We know but one Species of this Plant at present; viz.

MENTZELIA foliis & fructibus asperis. Plum. Nov. Gen. Mentzelia with rough Leaves and Fruit.

The Name was given to this Plant by Father *Plumier*, who discovered it in the French Settlements in *America*, in Honour to Dr. *Mentzelius*, who was Physician to the Elector of *Brandenburgh*, and who published an Index of Plants in *Latin*, *Greek* and *Higb-Dutch*.

This Plant grows plentifully in the Island of *Jamaica*, from whence the Seeds were sent to *England* by the late Dr. *William Houstoun*, which have succeeded in the Physic-garden at *Chelsea*.

It is an annual Plant, which perishes soon after the Seeds are ripe; and must be sown on a Hot-bed early in the Spring, that the Plants may be brought forward early in the Season, otherwise they will not produce ripe Seed in this Country. When the Plants are come up about an Inch high, they should be each transplanted into a separate Half-penny Pot, filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark, being careful to shade them from the Sun, until they have taken new Root; after which time they must be constantly watered every other Day in warm Weather, and should

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should have fresh Air every Day admitted to them, in proportion to the Warmth of the Season, and the Heat of the Bed in which they are plunged. In about six Weeks or two Months after transplanting, if the Plants have made a good Progress, they will have filled the Pots with their Roots; when they should be shifted into larger Pots, which must be filled with light rich Earth, and then plunged into the Bark-bed in the Stove, that they may have room to grow in Height, observing, as before, to water them duly, as also to admit fresh Air to them every Day in warm Weather; with which Management the Plants will rise to the Height of three Feet, and will produce ripe Seeds the latter End of August, or the Beginning of September. These Plants are closely beset all over with small crooked Spines, by which they will fasten themselves to whatever touches them so strongly, that by a Person's going near them, they will stick to the Cloaths, and the Branches of the Plant will separate and adhere to the Cloaths in like manner as the Seeds of Clivers or Goosegrafs.

MILLERIA.

The Characters are;

It hath a compound Flower, consisting of several Florets, and one half Floret, contained in one common Flower-cup; but these Florets are barren, and the half Floret, which is fruitful, is succeeded by one Seed, which is surrounded by the Flower-cup.

The Species are;

1. *MILLERIA annua erecta major, foliis conjugatis, floribus spicatis luteis. Houst.* Greater upright annual *Milleria*, with Leaves growing opposite, and yellow Flowers growing in a Spike.

2. *MILLERIA annua erecta minor, foliis parietariae, floribus ex foliorum*

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alis. Houst. Lesser upright annual *Milleria*, with pellitory Leaves, and the Flowers growing from the Wings of the Leaves.

3. *MILLERIA annua erecta ramosa, foliis maculatis, profundius serratis. Martyn. Cent. 1.* Upright branching annual *Milleria*, with spotted Leaves, which are deeply sawed.

4. *MILLERIA annua erecta minor, folio parietariae longiori, floribus ex foliorum alis.* Lesser upright annual *Milleria*, with a longer pellitory Leaf, and the Flowers growing from the Wings of the Leaves.

The two first Sorts were discovered by the late Dr. *William Houstoun* at *Campechy*, in the Year 1731, who constituted this Genus, on finding the Characters differing from all the Genus's which were before established. The Seeds of both these Sorts he sent to several curious Persons in *England* and *Holland*, where they have succeeded very well.

The other two Sorts were discovered by Mr. *Robert Millar*, Surgeon, at *Campechy* in the Year 1734; from whence he sent their Seeds into *England*, where they have also succeeded very well. The third Sort nearly resembles the first in its Leaves, Flowers and Growth; but branches a little more than that doth, and the Leaves are spotted with Black; the Flowers also are a little larger. The fourth Sort, which is somewhat like the second, grows taller, and doth not branch from the Bottom as the second doth; the Leaves are also much longer, but there appears no Difference in their Flowers.

The Seeds of these Plants should be sown early in the Spring, on a moderate Hot-bed; and when the Plants are come up about two Inches, they should be each transplanted into a separate Pot, filled with light rich Earth,

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Earth, and then plunged into a moderate Hot-bed of Tanners Bark, being careful to shade them from the Sun until they have taken Root, as also to water them frequently. After the Plants are rooted, they should have a large Share of free Air admitted to them, by raising of the Glasses of the Hot-bed every Day when the Weather is fair; and they must be constantly watered every Day in hot Weather, for they are very thirsty Plants. With this Management, the Plants will in a Month after transplanting rise to a considerable Height; therefore they should be shifted into larger Pots, and placed in the Stove, plunging them into the Bark-bed, where they may have room to grow, especially the first and third Sorts, which usually grow eight or nine Feet high, where they are well managed. But the second and fourth Sorts seldom rise above three Feet high, and do not spread their Branches very far; wherefore these may be allowed less room.

In the Middle of July these Plants will begin to flower, and the Seeds will be ripe soon after; therefore they must be gathered as soon as they change of a dark brown Colour; otherwise they will soon fall off, especially those of the two large Kinds, which will drop on the least Touch when they are ripe. These Plants will continue flowering till Michaelmas or later, if the Season proves favourable; but when the Cold of the Autumn comes on, they will soon decay.

MIMOSA, The Sensitive Plant.

To this Article must be added;

1. *MIMOSA herbacea procumbens* & *spinosa*, caule quadrangulo, siliquis quadrivalvibus. Houst. Trailing herbaceous prickly Sensitive Plant, with square Stalks, and Pods having four Cells.

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2. *MIMOSA fruticosa spinosa*, siliquis latis hirsutis & articulatis. Houst. Prickly shrubby Sensitive Plant, with broad hairy jointed Pods.

3. *MIMOSA non spinosa, pallustris* & *herbacea, procumbens, flore luteo pleno*. Houst. Smooth marsh herbaceous trailing Sensitive Plant, with full yellow Flowers.

4. *MIMOSA frutescens spinosa* & *hirsuta, tenuibus acaciæ foliis, siliquis articulatis*. Houst. Shrubby prickly and hairy Sensitive Plant, with narrow Leaves like the Acacia, and jointed Pods.

5. *MIMOSA humilis frutescens* & *spinosa, foliis acaciæ latioribus, siliquis conglobatis*. Dwarf shrubby and prickly Sensitive Plant, with broad Acacia-leaves, and Pods growing in Clusters.

6. *MIMOSA herbacea non spinosa minima repens*. Sloan. Cat. Jam. The least creeping herbaceous Sensitive Plant, without Spines, commonly called Sensitive Grass.

The three first-mentioned Sorts were discovered by the late Dr. William Houstoun at La Vera Cruz, from whence he sent their Seeds into England, from which many Plants were raised. The first Sort rises to the Height of three Feet, and hath slender square Stalks, which are strongly armed with Spines. This is a perennial Plant, which creeps at the Root; so that it may be propagated by the Suckers, which are produced pretty plentifully. This hath not as yet furnished any Flowers in England; for the Shoots generally die to the Root in Winter, and rise again the following Spring. The Leaves of this Sort do not only close on being touched, but also fall downward, so that it is ranked amongst those Kinds which are commonly called humble Plants.

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The second Sort rises to the Height of six or seven Feet, and hath a woody Stem, which is strongly armed with crooked Spines. The Leaves consist of several Wings, which have very narrow *Pinnae*; these Leaves are also beset on their under Side with sharp crooked Spines all along the Mid-rib, so that it is troublesome to go amongst the Plants in the natural Place of their Growth. The Flowers of this Kind are of a bright purple Colour, which are succeeded by flat hairy jointed Pods, in which are included the Seeds. This Sort grows very plentifully in moist rich Places about *La Vera Cruz*, in the *Spanish West-Indies*.

This Plant hath produced Flowers in *England*, but hath not perfected Seed, though it hath lived over the Winter, and has grown to a large Size. The Leaves of this Sort close very soon on the Touch, but they fall downward very slowly, so that it is not ranged amongst the humble Plants.

The third Sort grows plentifully in standing Waters near *La Vera Cruz*, where the Branches float on the Water, in like manner as do the Pond-weeds in this Country; but where the Water dries up, and leaves the Plants while they are young, they will grow more erect; and those of them which have grown in *England*, have risen to the Height of four or five Feet; but they spread themselves on every Side, and required some Support, when they were full-grown. This Sort hath produced Flowers in *England*, but hath not perfected Seed; and being an annual Plant, is at present lost in *Europe*. This is one of those commonly called Sensitive Plants; for the Leaves do not fall on being touched. The fourth and fifth Sorts were discovered by Mr. *Robert Millar*,

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Surgeon, at *Carthage*, from whence he sent their Seeds into *England*, which have succeeded in several Gardens of the Curious. These are both of them of the humble Kind, their Leaves falling on the slightest Touch. They will both of them live through the Winter, if they are placed in a very warm Stove.

The sixth Sort is very common in *Jamaica*, where it creeps on the Ground, and grows in short thick Tufts: this is very quick in its Motion; for, on drawing a Stick over the Plants, they will immediately contract, and leave the Impression for some time, till the Plants recover.

All these Sorts are propagated by Seeds, in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*; therefore I shall not repeat it in this Place.

MITELLA.

To this Article must be added;

MITELLA Americana maxima tinctoria. Inf. R. H. The Arnotto or Anotto.

This Plant rises to the Height of ten or twelve Feet, and hath a woody Stem, which is beset with many Branches at the Top, which are furnished with broad Leaves, shaped somewhat like a Heart; from these Branches the Flowers come out in small Clusters, which consist of several Leaves, and expand in form of a Rose; these are of a pale Flesh-colour. The Flowers are succeeded by brown Pods, shaped like a Mitre, and are echinated on the Outside in the same manner as the Chestnut; in which Pods are contained many irregular Seeds, which are of a red Colour.

The Seeds of this Plant are used to make a Dye, by the Inhabitants of

of *America*. The Manner of preparing it is as follows: They steep the Seeds in Water, until the outward red Part is dissolved intirely from them; then they boil the Water which is impregnated, several times, (after the same manner as they do the Juice of the Sugar Cane) until it becomes of a pretty thick Consistence; then they put it into Canvass, which is spread over a Fire of hot Ashes, which doth not flame, to bring it to a farther Consistence; when they make it up into Balls, which are sent into *Europe*, where it is used in Dying.

The *Indians* make use of this Colour to paint their Bodies, especially when they go to War, in order, as some suppose, to prevent their discovering the Blood when they are wounded, being almost of the same Colour, and is supposed to make them courageous. But the chief Use of it is to prevent the Musketa's and Flies from annoying them. This Dye is also mixed with Chocolate to give it a Colour.

It grows in the warmest Parts of *America*, from whence the Seeds are pretty frequently sent into *England*. These Seeds should be sown early in the Spring of the Year, in small Pots filled with light rich Earth, which should be plunged into a moderate Hot-bed of Tanners Bark, and the Earth should be frequently watered, to forward the Vegetation of the Seed. When the Plants are come up two Inches high, they should be carefully transplanted, each into a separate small Pot, filled with light rich Earth, and then plunged again into the Tanners Bark, observing to shade them from the Sun, until they have taken new Root; after which time they must be frequently refreshed with Water, and in hot Weather the Glasses of the Hot-bed

should be raised every Day, to admit fresh Air to the Plants. With this Management the Plants will grow to be a Foot high by the Middle of July, and will have filled the Pots with their Roots; therefore they should then be shaken out of the Pots, and their Roots carefully trimmed, and then put into Pots a little larger, and plunged again into the Hot-bed, and managed as before. These Plants may remain in the Hot-bed until toward *Michaelmas*, when the Nights begin to be cold; at which time they must be removed into the Stove, and plunged into the Bark-bed, where they may enjoy a good Share of Warmth in the Winter Season, otherwise they cannot be preserved in this Country: they must be frequently refreshed with Water during the Winter Season, but they should not have too much given to them each time, especially if they should cast their Leaves, which they frequently do toward the Spring. As these Plants are very tender, they should constantly remain in the Stove, observing in the Summer Season, when the Weather is warm, to admit a large Share of fresh Air to the Plants, as also to water them frequently, but in cold Weather they must be kept very warm. When these Rules are duly observed, the Plants will thrive very fast, and grow to the same Height which they usually do in their native Soil.

MONBIN, The Hog Plum tree.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are ranged in a circular Order; from whose Cup arises the Pointal, which afterward becomes an oval fleshy soft Fruit inclosing a hard Stone, in which are contained four Kernel or Seeds.

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We have but one Sort of this Tree; (*viz.*)

MONBIN *arbor, foliis fraxini, fructu luteo racemoso. Plum. Nov. Gen.* The Hog Plum-tree, *vulgò.*

This Tree is a Native of the warmest Parts of *America*, where it grows in the *Savanna's* and low marshy Places in great Plenty. It rises to be forty or fifty Feet high, and divides into a great many crooked Branches, which are beset with winged Leaves somewhat like those of the Ash-tree. The Flowers, which appear in the Spring, are produced in large pyramidal Bunches at the Extremity of the Branches, which are of a white Colour, and are very sweet. These are succeeded by several yellow oval-shaped Plums, growing in Clusters. The Wood of this Tree being soft, is used instead of Cork, to stop Bottles in *America*.

This is a very tender Tree, and must be constantly kept in the Stove, otherwise it cannot be preserved in this Country. It may be propagated by Cuttings (which is the most common Method practised in *America*); but if these are to be brought to *England*, they should be planted pretty close together in Tubs of Earth, and placed in a shady Situation, until they have taken good Root, before they are put on Board the Ship; and in their Passage they must be kept from Salt-water, nor should they be too plentifully supplied with fresh; for too much Moisture hath destroyed many of these Plants, before they have arrived in *England*; for if the tender Fibres are rotted, the Bark of the older Shoots will soon decay. When they arrive in pretty good Health, they should be carefully taken out of the Tubs, and each planted into a separate Pot, filled with light rich Earth, and

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plunged into a moderate Hot-bed of Tanners Bark, observing frequently to refresh them with Water; but it must not be given to them in large Quantities, until they have taken good Root. If they come over in a hot Season, it will be proper to shade them from the Sun, until they are rooted; and at that Season they will require but a very moderate Warmth in the Hot-bed; for too great Warmth would then be very injurious to them. But when they arrive late in the Year, the Bed should have a larger Share of Heat, in order to forward their Rooting, before the Winter's Cold comes on; for if they are not pretty well rooted before Winter, there will be small Hopes of their living till Spring; so that they should never be sent over too late in the Year.

These Plants may also be propagated by sowing of their Stones, which should be brought over as fresh as possible. These should be sown in the Spring of the Year, in small Pots filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark; where, if the Bed is in a good Temperature for Heat, and the Pots of Earth are duly moistened, the Plants will come up in about a Month after Sowing, when they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season, and they must be frequently refreshed with Water. In about three Weeks or a Month after the Plants appear above Ground, they will be fit to transplant, when each Plant should be planted in a separate small Pot, filled with light rich Earth, and then plunged into the Hot-bed again, where they must be shaded from the Sun, until they have taken new Root; after which time they must

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must be duly watered, and have a pretty large Share of fresh Air in warm Weather.

When the Plants have grown so large as to have filled the Pots with their Roots, they should be shifted into others of a larger Size, being careful not to shake the Earth from their Roots, but the Fibres round the Ball of Earth should be trimm'd. They must then be plunged into the Hot-bed again, provided the Plants are not too tall to stand under the Glasses, without Injury to their Leaves; in which Case they must be plunged into the Bark-bed in the Stove, where they may have room to advance in Height. But if they have room in the Hot-bed, they may remain there till about *Michaelmas*, when the Nights begin to be cold; at which time they must be removed into the Stove, and plunged into the Bark-bed, in the warmest Part of the Stove. During the Winter Season they must be often refreshed with Water; but it must not be given to them in large Quantities, when the Season is cold; especially, if they should cast their Leaves, which they frequently do toward the Spring, then they must have but little Water, until they put out new Leaves; because too much Moisture is injurious to them, when they are in almost an unactive State.

These Plants are too tender to live in the open Air in *England*, even in the warmest Season of the Year; so that they should constantly remain in the Bark-stove, where they should have a large Share of fresh Air in Summer; and they will at that Season require to be plentifully watered, for they naturally grow in low moist Places; but in Winter they must be kept very warm. With this Management the Plants will thrive

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very fast, and in few Years will produce their Fruit.

MONTIA.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, whose under Part is tubulous, but the upper Part is expanded, and cut into five Parts; the Fruit which succeeds the Flower, is a bicapsular flat Seed-vessel, which is surrounded on the Borders with a Plume, which expands like Rays.

We have but one Plant of this Genus; viz.

MONTIA arborescens, abutili folio serrato, fructu racemoso. *Houft.* Tree-like Montia, with a sawed abutilon Leaf, and the Fruit growing in Bunches.

This Plant was discovered by the late Dr. *William Houstoun*, near old *La Vera Cruz* in *New Spain*, who gave this Name to it in Honour to Dr. *Monti*, Professor of Botany at *Bononia*.

It grows about sixteen or eighteen Feet high, and hath a woody Stem, which divides into several Branches; these are beset with Leaves somewhat like those of the yellow Mallow, which are five Inches long, and four broad, ending in a Point; these are sawed round the Edges, and have a Down on their under Sides. The Flowers are of a greenish yellow Colour, and are produced in Bunches. The Season of its Flowering is in *January*, in the native Place of its Growth, and the Seeds are ripe in *March*.

This Plant is propagated by Seed, which should be sown early in the Spring on a Hot-bed; and when the Plants are come up about two Inches high, they should be each transplanted into a separate small Pot, filled with light fresh Earth, and plunged into a moderate Hot-bed, being careful to shade them from

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the Sun until they have taken new Root ; after which time they must have a large Share of fresh Air admitted to them in warm Weather, and they must be duly watered. In this Hot bed the Plants may remain till Autumn, when they must be removed into the Stove ; and the first Year, while the Plants are young, it will be proper to plunge them in the Bark-bed ; but the following Winters they will do very well in the dry Stove, which should be kept up to temperate Heat. And in the middle of the Summer, they will bear to be exposed for near three Months, provided they are placed in a warm Situation. In hot Weather these Plants must be frequently watered, and as they advance in their Growth, they should be shifted into larger Pots, filled with light fresh Earth. With this Management the Plants will thrive very well, and in two or three Years will produce Flowers.

MORINA.

The Characters are ;

It hath a tubulous anomalous personated Flower, consisting of one Leaf, which is divided into two Lips : the upper Lip is again divided into two Parts, but the under Lip is divided into three. From the Flower-cup, which is for the most part bifid, arises the Pointal, fixed like a Nail in the hinder Part of the Flower ; but is barren, for the Flower-cup rests on the Embryo, and is surrounded by another Cup as a Sheath, in which are many roundish and angular Seeds.

We have but one Sort of this Plant ; viz.

MORINA orientalis, carlinæ folio.
Tourn. Cor. Eastern Morina, with a Leaf of the Carline Thistle.

This Plant was discovered by Dr. Tournefort in his Travels in the

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Lewant, who gave it this Name in Honour to Dr. Morin a Physician at Paris.

This Plant is propagated by Seed, which should be sown soon after it is ripe in the Autumn, otherwise the Plants will not come up the following Summer ; for I have several times observed, where the Seeds have been sown in the Spring, they have remain'd in the Ground fourteen or fifteen Months, before the Plants have appeared. These Seeds should be sown in the Places where the Plants are to remain, because they send forth tap Roots, which run very deep into the Ground ; and when these are broken or injured in transplanting, the Plants seldom thrive after. They may be sown in open Beds or Borders of light fresh Earth, being careful to mark the Places, that the Ground may not be disturbed ; for it frequently happens, that the Seeds do not come up the first Year, when they are sown in Autumn ; but when they are sown in the Spring, they never come up the same Year. The Ground where the Seeds are sown, must be kept clear from Weeds, which is all that is necessary to be done until the Plants come up ; when, if the Season should prove dry, it will be proper to refresh them two or three times a Week with Water ; and where they come up too close together, they should be thinned so as to leave them near eighteen Inches apart ; after which they will require no other Culture, but to keep them constantly clear from Weeds ; and in the Spring, just before the Plants put out new Leaves, to stir the Ground gently between them, and lay a little fresh Earth over the Surface of the Bed, to encourage the Plants.

In Autumn these Plants decay to the Ground, and send forth new Leaves

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Leaves the following Spring; but it will be three Years from the Time of the Plants first coming up, to their Flowering; but after that Time, they will flower every Season, and the Roots will continue many Years, provided they are not disturbed. These Plants, when in Flower, make an agreeable Diversity, when mixed with other hardy flowering perennial Plants; and as they do not require much Care to cultivate them, they deserve Room in every good Flower-garden.

MOSCHATELLINA, Tuberos Mofchatel.

The Characters are;

It hath a Flower consisting of one Leaf, which is divided at the Brim into many Parts, from whose Cup arises the Pointal, fixed like a Nail in the middle of the Flower, which afterward becomes a soft succulent Berry, in which are contained many flat Seeds.

We have but one Sort of this Plant: viz.

MOSCHATELLINA foliis fumaricæ bulbosæ. J. B. Mofchatel with Leaves like those of the bulbous Fumitory.

This Plant grows wild in shady moist Places in several Parts of *England*; it flowers the latter End of *March*, or the Beginning of *April*, and the Leaves decay about the middle of *June*, when the Roots may be taken up and transplanted. These should have a pretty strong Soil, and if they are planted under Thickets or Shrubs, they will thrive much better than in an open Exposure. The Flowers are of a greenish white Colour, and not very beautiful; but as the Plants will thrive under Trees, and require no Care in their Culture, they may have a Place in Gardens for the sake of Variety.

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MUNTINGIA.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed in a circular Order, from whose Cup arises the Pointal, which afterward becomes a globular soft fleshy umbilicated Fruit, in which are contained many small Seeds.

The Species are;

1. **MUNTINGIA folio sericeo molli, fructu majori**. Plum. Nov. Gen. Muntingia with a soft silky Leaf, and a larger Fruit.

2. **MUNTINGIA folio ulmi aspero, fructu minimo glomerato**. Plum. Nov. Gen. Muntingia with a rough Elm-leaf, and the least Fruit growing in Clusters.

3. **MUNTINGIA folio corni, fructu minore**. Plum. Nov. Gen. Muntingia with a cornel Leaf, and a lesser Fruit.

These Plants all of them grow in *Jamaica*, and several other Parts of *America*. They were discovered by Father *Plumier*, who gave them the Name from Dr. *Muntingius*, who was Professor of Botany at *Groningen* in *Holland*, so that we have no *English* Name for them.

They may be propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, where they should be duly watered, and in warm Weather the Glasses should be raised to admit fresh Air. These Seeds will often remain in the Ground a whole Year, before the Plants will appear; in which Case the Pots must be kept constantly clear from Weeds, and should remain in the Hot-bed till after *Michaelmas*; when they may be removed into the Stove, and plunged into the Bark-bed, between other Pots of tall Plants, under which they will stand very well, and may be crowded

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crowded in, where Plants will not thrive. During the Winter Season, the Pots should be now-and-then watered, when the Earth appears dry; and in the Beginning of *March*, the Pots should be removed out of the Stove, and placed into a fresh Bark-bed under Frames, which will bring up the Plants in a short time after.

When the Plants are come up about two Inches high, they should be carefully taken out of the Pots, and each planted into a separate small Pot filled with light rich Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun, until they have taken new Root; after which time they should be duly watered, and in warm Weather must have a large Share of fresh Air. In this Hot-bed the Plants may remain until the Autumn, when the Nights begin to be cold; when they should be removed into the Stove, and plunged into the Bark-bed. During the Winter Season these Plants must be kept warm, (especially while they are young) and they must be frequently refreshed with Water; but it must not be given to them in large Quantities at this Season, lest it rot the tender Fibres of their Roots. It will be proper to continue these Plants in the Stove all the Year; but in warm Weather they should have a large Share of Air, and Plenty of Water: but as the Plants grow in Strength, they will be more hardy, and may be more exposed in Summer, and in Winter will live in a dry Stove, if kept in a moderate Degree of Heat.

The first of these Plants riseth to the Height of thirty Feet or more in the Places of its natural Growth, and divides into many Branches at the Top; the Flowers are white,

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having several yellow Threads in each; the Fruit is about the Size of a Cherry, and shaped like a Pomegranate, and, when ripe, of a brown Colour.

The other two Sorts seldom grow above twelve or fourteen Feet high, and put out many Branches on their Sides. The Fruit of these are small, and of an orange Colour.

MURUCUA.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed in a circular Order, which is inclosed in a many-leav'd Cup. The Middle of the Flower is occupied by a Tube, shaped like the Trunk of a Cone; out of which arises the Pointal, with the Embryo on the Top, on which rest three Clubs or Nails, and under them the Stamina. The Embryo afterward becomes a fleshy oval Fruit, having one Cell, which is filled with Seeds, which are covered with a Hood or Veil.

There is but one Species of MURUCUA; which is,

MURUCUA folio lunato. Inst. R. H. Murucua with a horned Leaf.

This Plant is very nearly allied to the Passion-flowers, and is by some Authors ranged with them; but as it differs from them in the Structure of the Flower, having a large Trunk in the Centre of the Flower, which the Passion-flowers have not, so Dr. Tournefort has separated it from them, and applied this Name to it, which is the *American* Name given to several Sorts of Passion flowers.

It grows in *Jamaica*, and several other Places in the hottest Parts of *America*, from whence the Seeds may be procured. These Seeds should be sown early in the Spring of the Year, on a moderate Hot-bed; and when the Plants are come up, they must be transplanted each
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into a separate small Pot, and plunged into a Hot-bed of Tanners-bark, and then managed in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the tender Sorts of Passion-flowers, with which this Plant will thrive, and produce its beautiful Flowers every Year in Plenty.

MUSA, The Plantain-tree.

To this *Article* must be added;

Since the Publication of the former Volumes of the *Gardeners Dictionary*, there have been several of these Plants in Flower and Fruit, in several Parts of *Europe*. The first of these Kinds, which produced Fruit in *England*, was in the Garden of Sir *Joseph Ayliffe*, Bart. near *Harrow*. Which was of that Sort with longer Fruit, commonly called the *Plantain-tree*. This Plant grew above twenty Feet high; and at fourteen Feet from the Surface of the Bark-bed, was produced the Bunch of Fruit from between the Leaves, which was about four Feet in Length, and weighed above forty Pounds. These Fruit grew to a large Size, and became of a pale yellow Colour in Autumn, which is the Sign of Ripeness; but it was an ill-flavoured Fruit, as I am informed it is in the native Places of its Growth.

Since this there have been some other of these Plants in Fruit in *England*; one was at Mr. *Blackbourn's* in *Lancashire*: and two Plants; one of each Kind hath produced Fruit in the *Physic-garden* at *Chelsea*. The most sure Method to have these Plants fruit in *England*, is, after they have grown for some time in Pots, so as to have made good Roots, to shake them out of the Pots with the Ball of Earth to their Roots, and plant them into the Tan-bed in the Stove, observing to lay a

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little old Tan near their Roots, for their Fibres to strike into; and in few Months the Roots of these Plants will extend themselves many Feet each way in the Bark; and these Plants will thrive a great deal faster, than those which are confined in Pots or Tubs. When the Bark-bed wants to be renewed with fresh Tan, there should be great Care taken of the Roots of these Plants, not to cut or break them, as also to leave a large Quantity of the old Tan about them, because, if the new Tan is laid too near them, it will scorch their Roots, and injure them. These Plants must be plentifully supplied with Water, otherwise they will not thrive; in Winter they should be watered every other Day, giving at least a Gallon to each Plant; but in Summer they must be watered every Day, and double the Quantity given to them each time. If the Plants push out their Flower-stems in the Spring, there will be Hopes of their perfecting their Fruit; but when they come out late in the Year, the Plants will decay before the Fruit is ripe. The Stoves in which these Plants are placed, should be at least twenty-four Feet in Height; otherwise there will not be room for their Leaves to expand: for when the Plants are in Vigour, the Leaves are often eight Feet in Length, and near three Feet broad; so that if the Stems grow to be sixteen Feet, to the Division of the Leaves, if the House is not twenty-four Feet high, the Leaves will be cramp'd, which will retard the Growth of the Plants.

MYAGRUM, Gold of Pleasure.

The Characters are;

It hath a Flower consisting of four Leaves, which are placed in form of a Cross, out of whose Cup arises the Pointal, which afterwards becomes a tree

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a turbinate Fruit, having one Cell, in which is included an oblong Seed, and two empty Cells at the Point.

The Species are ;

1. MYAGRUM *monospermum latifolium*. C. B. P. Broad-leaved one-grained Gold of Pleasure.

2. MYAGRUM *monospermum minus*. C. B. P. Lesser one-grained Gold of Pleasure.

3. MYAGRUM *capitulis rotundis*. J. B. Round-podded Gold of Pleasure.

These are all of them annual Plants, which perish soon after their Seeds are ripe. They grow wild in the Corn-fields, in several Parts of Europe, where if the Seeds are permitted to scatter, the Plants will come up and thrive better than those which are sown with Care ; so that the best Way to continue these Species, is to let the Seeds fall in Autumn, or to sow them soon after they are ripe ; for when they are sown in the Spring, they very often miscarry. When the Plants are come up, they should be cleared from Weeds ; and where they are too close together, they should be thinned so as to leave them about eight or ten Inches asunder, which is all the Culture they require.

The Oil of these Seeds is much used in Germany, where the Inhabitants sow large Fields with the Seed. This Oil is frequently used in Medicine, but the poor People eat the Oil in Sallads and Sauces, and the Rich use the Oil for their Lamps ; but in England it is very rarely used either way.

MYXA, The Sebesten.

The Characters are ;

It hath a rose-shaped Flower consisting of five Leaves. These grow in Bunches. At the Bottom of the Flower-cup is the Ovary, which afterwards becomes a plum-shaped Fruit,

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including a Nut, which has sometimes one, and at other times three Cells, in which is contained the Seed.

We have but one Species of this Plant in Europe ; which is,

MYXA. *Dod. p. 806.* The Sebesten Plum.

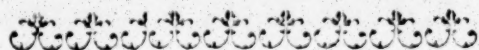
This Plant is very rare at present in Europe, being to be found in very few Gardens. It is propagated by Seeds, which do not ripen in Europe ; therefore should be obtained from the East-Indies, which is the natural Country of their Growth ; but as the Passage is long from thence to Europe, the Seeds seldom come good to England. Therefore they should be taken fresh from the Tree, and put into Tubs of Earth or Sand, and Care taken of them in their Passage, that the Salt-water do not come to them, nor Vermin destroy them. When they arrive, they should be taken out of the Tub, and planted in small Pots, filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing frequently to water the Earth, in order to forward the Vegetation of the Seed. When the Plants are come up about two Inches high, they should be each transplanted into a separate small Pot filled with light rich Earth, and then plunged into the Hot-bed again, observing to screen them from the Sun until they have taken new Root ; after which time they must have a large Share of fresh Air in warm Weather, and should be frequently refreshed with Water. The Plants may remain in the Hot-bed till the Autumn, when they should be removed into the Stove ; and the first Year, being young, they should be kept pretty warm ; but as the Plants grow stronger, they will bear to be used more hardily, tho' they

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they should always be placed in a Stove in Winter, otherwise they will not thrive in this Country.

The Fruit of these Trees was formerly used in Medicine, but of late Years they have been neglected, so that they are rarely brought into England.



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NARCISSUS, The Daffodil.

To this Article must be added;

1. NARCISSUS *medio-purpureus*. Hort. Eyst. Single Daffodil, with a white Flower, and a purple Middle.

2. NARCISSUS *Constantinopolitanus polyanthos major, melino pleno flore*. H. R. Par. Greater many-flowered Daffodil of Constantinople, with double yellow Flowers.

3. NARCISSUS *Cyprius luteus polyanthos, flore pleno*. Lob. Adv. Many-flowered Daffodil of Cyprus, with double yellow Flowers, commonly called the Cyprus Narcissus.

4. NARCISSUS *orientalis polyanthos, pleno flore, petalis exterioribus albis, interioribus luteis, odoratissimus*. Cleric. Sweet-scented Eastern Daffodil, with many double Flowers, whose outer Leaves are white, and the inner Leaves yellow.

5. NARCISSUS *niveus, calyce flavo, odoris fragrantissimi*. C. B. P. Snow-white Daffodil, with a yellow Cup, and of a fragrant Scent.

6. NARCISSUS *orientalis polyanthos, floribus odoris fragrantissimi*. Cler. Many-flowered Eastern Daffodil, with snow-white Flowers, and a very fragrant Odour.

7. NARCISSUS *orientalis polyanthos major, flore flavescente stellato*.

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Greater many-flowered Eastern Daffodil, with a yellowish starry Flower.

8. NARCISSUS *orientalis polyanthos major, flore aureo, calyce flavescente stellato*. Greater many-flowered Eastern Daffodil, with a golden Flower, having a pale yellow starry Cup.

9. NARCISSUS *albus, flore minore, jasmini odore*. C. B. P. White Daffodil, with a smaller Flower, smelling like Jasmine.

10. NARCISSUS *orientalis polyanthos albus odoratus, calyce stellato*. Eastern many-flowered Daffodil, with white sweet-scented Flowers, having a starry Cup.

11. NARCISSUS *Americanus angustifolius, croci flore*. Houst. Narrow-leaved American Daffodil, with a saffron-coloured Flower.

The first Sort here mentioned is pretty common in many of the Gardens near London: this produces only one single white Flower on the Top of the Stalk, which turns on one Side, and has a purple Rim to the Cup in the Middle: it flowers the latter End of April, and the Beginning of May, and is very hardy.

The other Sorts, having been lately introduced into the English Gardens, are not at present very common; but as these are all of them very hardy Plants, and multiply pretty fast by Off-sets, in few Years they will be in as great Plenty as any of the other Kinds.

The second, third, fourth, fifth, sixth and ninth Sorts, are extremely worth cultivating in every good Garden, for the sake of their beautiful sweet-smelling Flowers, which continue from the Middle of March to the End of April, unless the Season proves very hot. The ninth Sort produces often twenty Flowers on each Stalk, which are of a snow-white

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white Colour, and smell exceedingly sweet.

All these Sorts may be propagated after the manner as hath been directed in the former Volumes of the *Gardeners Dictionary*: therefore I shall not repeat it in this Place.

The eleventh Sort was discovered by the late Dr. *William Houftoun* at *La Vera Cruz*, where it grew in great Plenty. This hath Leaves like those of the Jonquil, and there is but one Flower produced on each Stalk. It is propagated by Off-sets from the Roots, in the same manner as the common Narcissus; but being very tender, must be preserved in the Bark-stove, and treated after the same manner as the tender Kinds of Lilio-narcissus, otherwise they will not thrive in this Country.

NISSOLIA, Grass-vetch.

To this Article must be added;

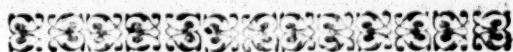
1. NISSOLIA *orientalis*, flore *purpureo*. *Tourn. Cor.* Eastern Grass-vetch, with a purple Flower.

2. NISSOLIA *Americana procumbens*, folio *rotundo*, flore *luteo*. *Houft.* American trailing Vetch, with a round Leaf, and a yellow Flower.

The first of these Sorts was discovered by Dr. *Tournefort* in the *Lewant*: this is a hardy Plant, and may be sown in the full Ground, and treated as the common Sort, but the second Sort is more tender. This was discovered by the late Dr. *William Houftoun*, near *La Vera Cruz*. The Seeds of this Plant should be sown on a moderate Hot-bed early in the Spring; and when the Plants are come up, they should be frequently refreshed with Water, and in warm Weather the Glasses of the Hot-bed should be raised a little every Day, to admit fresh Air to the Plants, which will cause them to grow strong, and in about a Month's time they will be fit to

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transplant; when they should be taken up carefully, and each planted into a small Pot filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun in the Heat of the Day, until they have taken new Root; after which time they should have a large Share of Air in warm Weather, and be frequently refreshed with Water. The Plants may remain in the Hot-bed until the Autumn, when the Cold begins to come on; at which time they should be removed into the Stove, and plunged into the Bark-bed, where if they are carefully managed, they will live thro' the Winter, and flower early the following Summer, when they will perfect their Seeds.



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OBELISCOTHECA; Dwarf American Sunflower, *vulgo*.

The Characters are;

It hath radiated Flowers, having many Florets, which are fertile, but the half Florets are barren: the Placenta is commonly conical, and filled with chaffy Empalements, which appear folded up; in each of which is an Ovary, which is shaped like an Obelisk reversed, having a hollow Base. These Parts are contained in one common Flower-cup, which is deeply cut into several Segments, and expands in form of a Star: to which may be added, The Leaves are placed alternately.

The Species are;

1. OBELISCOTHECA *integrifolia*, radio *aureo*, umbone *atro-rubente*.

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Hort. Elth. Dwarf Sunflower, with intire Leaves, the Rays of the Flower of a gold Colour, and a dark-red Disk.

2. *OBELISCOTHECA doronici folio, radio purpureo, umbone atro-rubente.* Dwarf Sunflower, with Leaves like Leopards-bane, the Rays of the Flower purple, and a dark-red Disk.

These Plants are both Natives of *America*; the first of them was brought from *Virginia*, and the other from *Carolina*. They may both be propagated by parting of their Roots in the Spring, planting the Heads into Pots filled with fresh rich Earth, placing them in an open Situation, where they may have the Benefit of Sun and Showers, in which Place they may remain during the Summer Season; but in Winter they must be sheltered under a Frame, to protect them from severe Frost; observing to let them have as much free Air as possible in mild Weather. They must be frequently refreshed with Water, especially in Summer, when it should be given them in Plenty; but in Winter they must have it more sparingly. The first Sort increases pretty fast in *England*; whereby it is become pretty common, and is preserved for the sake of its Flowers, which are produced in Plenty, and are of long Duration, each Flower continuing in Beauty five or six Weeks; and these being succeeded by new Flowers, the Plants are commonly furnished with them four or five Months.

The second Sort is less common than the first, by reason of the few Off-sets it produces from the Side; and the Seeds rarely being perfected in *Europe*, the Plants cannot be greatly increased; therefore, if a Person could procure the Seeds of this Plant from *Carolina*, it would be the surest

Method to obtain a Stock of the Plants. The Seeds of both these Plants should be sown on a moderate Hot-bed; and when the Plants are grown tolerably strong, they should be each planted into a separate Pot, and inured to the open Air by degrees; after which they must be treated as hath been directed for the old Plants.

OCHRUS, Winged Pea.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes a Pod, for the most part round and cylindrical, filled with roundish Seeds. To these Notes must be added, That the Leaves are sometimes simple, and sometimes conjugated, ending in Tendrils.

The Species are;

1. *OCHRUS folio integro, capreolos emittente, semine subluteo. C. B. P.* Ochrus or Winged Pea, with an intire Leaf, sending forth Tendrils, and a yellowish Seed.

2. *OCHRUS folio integro, capreolos emittente, semine pullo. C. B. P.* Ochrus or Winged Pea, with an intire Leaf, sending forth Tendrils, and a brown Seed.

3. *OCHRUS folio integro, capreolos emittente, semine atro. C. B. P.* Ochrus or Winged Pea, with an intire Leaf, sending forth Tendrils, and a black Seed.

4. *OCHRUS folio diviso in capreolos abeunte. Inst. R. H.* Ochrus or Winged Pea, with a divided Leaf ending in Tendrils.

5. *OCHRUS Americanus tomentosus, floribus luteis. Plum.* Woolly Ochrus or Winged Pea of *America*, with yellow Flowers.

The three first Sorts are accidental Varieties, which differ in the Colour of their Flowers and Seeds, but in every other respect are the same; so that they may be deemed only

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seminal Variations. They are annual Plants, which must be sown in the Spring of the Year, on an open Border or Bed of light fresh Earth, allowing them the same Distance, as is usual for the middle Sort of Pease. The better Way is to sow them in Drills about two Feet asunder; and when the Plants are come up, the Earth should be drawn to them, in the same manner as is practised for Pease: and when the Plants begin to rise in Height, there should be some Sticks put down by them, to which they will fasten their Tendrils, whereby they will be supported from trailing on the Ground; for want of which, in bad Seasons, they do not ripen their Seeds kindly. The Ground between the Rows should always be kept clear from Weeds, which, if permitted to grow, will soon overbear the Plants, and destroy them. About the Middle of June, the Plants will flower, and their Seeds will ripen the Beginning of August.

These Plants grow wild in Lombardy, and in some Parts of Spain; but in England they are preserved in the Gardens of some Persons who are curious in Botany, for the sake of Variety. The Seeds of these have been eaten in Times when there has been a Scarcity of other Provision, by the poor Inhabitants where they naturally grow; but they are bitter, and hard of Digestion, and do not afford good Nourishment.

The fourth Sort was discovered by Dr. Tournefort in the Levant, from whence he sent the Seeds to the Royal Garden at Paris, where it flourished, and has since been distributed to several Persons who are curious in collecting of Plants. This is as hardy as the common Sort, and may be sown and treated after the same manner.

The fifth Sort was discovered by Father Plumier in America, and since by the late Dr. William Houstoun at Campechy. The Seeds of this Sort must be sown on a Hot-bed early in the Spring, and when the Plants come up; they should be transplanted each into a separate Pot, and plunged into a moderate Hot-bed; where they should have a large Share of free Air in warm Weather, and must be frequently refreshed with Water. About the Beginning of July these Plants will flower, and their Seeds will ripen in Autumn.

OLDENLANDIA.

The Characters are;

It hath a rose-shaped Flower, consisting of one Leaf, which is divided into four Parts almost to the Bottom, and rests on the Empalement; which Empalement afterward becomes an almost globular Fruit, having two Cells, which contain many small Seeds.

We have but one Species of this Plant; which is,

OLDENLANDIA humilis, hyssopi folio. Plum. Nov. Gen. Dwarf Oldenlandia, with an hyssop Leaf.

This Plant was discovered in America by Father Plumier, who gave this Name to it in Honour to Henry Bernard Oldenland a German, who was a Disciple of Dr. Herman at Leyden, and a very curious Botanist.

The Seeds of this Plant were sent into England by Mr. Robert Millar, who gathered them in Jamaica.

is a low annual Plant, which seldom rises above three or four Inches high, and divides into many Branches, which spread near the Ground. These Branches are furnished with long narrow Leaves, which are placed by Pairs opposite to each other. From the Wings of the Leaves arises the Flower-stalk, which grows about an Inch or a little more in Length, and divides into three or

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four smaller Foot-stalks: on the Top of each of these, stands one small white Flower.

The Seeds of this Plant should be sown early in the Spring, on a Hot-bed; and when the Plants are come up, they should be transplanted on another Hot-bed, or into small Pots, and plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Roots; after which time, they must have a large Share of free Air in warm Weather, and must be frequently refreshed with Water. With this Management the Plants will flower in *June*, and their Seeds will ripen soon after; so that the Seeds must be gathered from time to time as they ripen; for as the Branches grow larger, there will be fresh Flowers produced until Autumn, when the Plants will perish: but if the Seeds are permitted to scatter in the Pots, the Plants will soon after appear, which will live thro' the Winter, provided they are placed in the Stove; and will flower early the following Spring.

OPHIOGLOSSUM, Adders-tongue.

The Characters are;

It hath no visible Flower, but the Seeds are produced on a Spike, which resemble a Serpent's Tongue; which Seed is contained in many longitudinal Cells, which open, and cast forth the Seeds when ripe.

The Species are;

1. **OPHIOGLOSSUM vulgatum**. C. B. P. The common Adders-tongue.

2. **OPHIOGLOSSUM anguloso folio**. C. B. P. Adders-tongue with an angular Leaf.

3. **OPHIOGLOSSUM minus, subrotundo folio**. C. B. P. Lesser Adders-tongue, with a roundish Leaf.

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4. **OPHIOGLOSSUM bilingue majus, folio acuto**. Mentz. Pug. Greater Adders-tongue, with a pointed Leaf, and a double Tongue,

5. **OPHIOGLOSSUM bilingue medium, folio obtuso**. Mentz. Pug. Middle Adders-tongue, with a blunt Leaf, and a double Tongue,

6. **OPHIOGLOSSUM bilingue minimum**. Mentz. Pug. The least Adders-tongue, with a double Spike or Tongue.

7. **OPHIOGLOSSUM palmatum**. Plum. Handed Adders-tongue,

8. **OPHIOGLOSSUM cordiforme & reticulatum**. Plum. Heart-shaped and netted Adders-tongue.

The first Sort grows wild in moist Meadows in several Parts of *England*. This is directed to be used in Medicine, by the College of Physicians, in their Dispensatory, but is seldom to be found in Gardens, being very difficult to transplant, and will not live long, where the Grass doth not grow about it. The best Method to have it succeed, is, to dig up the Plants about the Beginning of *April*, with large Balls of Earth to them, being careful to dig so deep, as to get below their Roots; then plant these with the Turf about them, in a moist shady Place, where they will grow pretty well, and may continue for some Years.

The second and third Sorts grow wild in *Germany*, and on the *Alps*; but are not to be found in *England*.

The fourth, fifth and sixth Sorts, are also Varieties which have been found in some Parts of *Europe*; but it is not certain whether they are distinct Species, or only Variations from the common Sort.

These are all as hardy as the common Sort; and whenever they are found, may be transplanted and treated in the same manner.

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The seventh and eighth Sorts were discovered by Father *Plumier* in *America*. These grow in moist swampy Places in *Jamaica*, and several other Places in the warmer Parts of *America*; but are difficult to remove so as to have them grow in other Countries.

OPHRIS, Tway-blade.

The Characters are;

It hath a polypetalous anomalous Flower, consisting of six dissimilar Leaves, of which the five upper ones are so disposed, as to represent in some measure an Helmet, the under one being beaded and shaped like a Man. The Empalement becomes a Fruit, perforated with three Windows, to which adhere Valves, pregnant with very small Seeds like Dust.

The Species are;

1. OPHRIS *bifolia*. C. B. P. Common Tway-blade.
2. OPHRIS *bifolia bulbosa*. C. B. P. Bulbous rooted Tway-blade.
3. OPHRIS *palustris*, *radice reptante*. Lult. R. H. Marsh Tway-blade, with a creeping Root.
4. OPHRIS *minima*. C. B. P. The least Tway-blade.

The first Sort is pretty common in moist Meadows, and in shady moist Woods, in divers Parts of *England*: it flowers the latter End of *May*, and in the Beginning of *June*. This Plant may be transplanted into Gardens, if the Roots are taken up with a Ball of Earth, soon after the Leaves decay. These must be planted in a moist shady Border, where, if they are not disturbed, they will remain many Years, and require no other Care but to keep them clear from Weeds.

The second Sort doth not grow wild in *England*, but is frequently found in *Germany*, and on the *Alps*; this may be transplanted and managed as the former Sort.

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The third Sort grows plentifully in several of the Northern Counties of *England*; and the fourth Sort grows in *Cambridgeshire*, in *Hertfordshire*, and *Kent*. These two Sorts delight in cold moist Places, but are with great Difficulty preserved in Gardens.

OPUNTIA, The Indian Fig.

To this Article must be added;

1. OPUNTIA *maxima*, *folio oblongo-rotundo majore*, *spinulis obtusis mollibus & innocentibus obsito*, *flore striis rubris variegato*. Sloan. Cat. The greatest Indian Fig, with greater oblong roundish Leaves, and small soft blunt Spines, with a Flower striped with Red.

2. OPUNTIA *major spinosa caulescens*, *flore minore rubro clauso*, *fructu parvo coccineo*. Houst. Greater stalky and prickly Indian Fig, with a smaller red Flower, which doth not expand, and a small scarlet Fruit.

3. OPUNTIA *caulescens*, *foliis amplissimis tenuibus compressis*, *spinis longissimis confertissimis*, *gracilibus & albicantibus armatis*. Houst. Stalky Indian Fig, with largenarrow compressed Leaves, which are closely armed with very long slender white Spines.

The first Sort grows commonly to the Height of eight or nine Feet, and has large Leaves, which are not prickly. The Flowers are striped with Red, and the Fruit is not so palatable as most of the other Sorts. This is by many supposed to be the Sort which the *Cochineel* feeds on; but the third Sort, mentioned in the former Volumes of the *Gardeners Dictionary*, is what the late Dr. *Houftoun* brought from *La Vera Cruz*, with the Insects upon it. This Sort hath very large yellow Flowers, and the Fruit, when ripe, is of a fine purple Colour, and smooth,

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smooth, having no Spines on the Outside, which most of the other Sorts have.

The second Sort commonly grows to the Height of fifteen or sixteen Feet, and hath a thick woody Stem. This grows very common on the Hills, and by the Road Sides, in most Places in *Jamaica*.

The third Sort was observed in great Plenty near the Head of *Kingstown Harbour* in *Jamaica*, by the late Dr. *Houftoun*, but without Flower or Fruit. This is by some Persons called *Robinson Crusoe's Coat*, but for what Reason I cannot imagine.

These Sorts may be cultivated in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the Sorts there enumerated; only observing to let these remain constantly in the Stove, otherwise they will not produce either Fruit or Flowers in this Country.

OREOSELINUM, Mountain Parsley.

The Characters are;

It hath a rose-shaped umbellated Flower, consisting of several Leaves, placed in a circular Order, resting on the Empalement, which afterward becomes a Fruit, composed of two Seeds, which are oval, plain, large-streaked and bordered, and sometimes cast off their Cover. To these Notes must be added, That the Leaves are like Parsley.

The Species are:

1. **OREOSELINUM apii folio, majus.** *Inst. R. H.* Greater Mountain Parsley, with a parsley Leaf.

2. **OREOSELINUM apii folio, minus.** *Inst. R. H.* Smaller Mountain Parsley, with a parsley Leaf.

3. **OREOSELINUM pratense, cicuta folio.** *Inst. R. H.* Meadow Mountain Parsley, with a hemlock Leaf.

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4. **OREOSELINUM orientale, sesileos Massiliensis folio.** *Tourn. Cor.* Eastern Mountain Parsley, with a Leaf like the Hartwort of *Mar-seilles*.

The first and second Sorts grow in the mountainous Pastures, and Vineyards on the *Rhine* in *Germany*, as also on the Hills in the Neighbourhood of *Geneva*.

The third Sort grows in the Meadows, and low Pastures, in several Parts of *Germany*, but particularly in the *Palatinate*.

The fourth Sort was discovered by Dr. *Tournefort* in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*.

The Seeds and Roots of the two first Sorts are commonly used in Medicine by the Physicians of *Germany*, but are never prescribed in *England*. They are esteemed cleansing and opening, and very good for the Stone and Gravel. From some Species of this Genus, Dr. *Boerhaave* conjectures that some of the Gums of *Asia* and *Africa* are produced: as the *Ammoniac*, *Sagapenum*, *Opopanax*, and *Galbanum*.

These Plants are propagated by Seeds, which should be sown in Autumn, as soon as possible after they are ripe; for if they are kept out of the Ground until the Spring, they seldom grow. These Seeds should be sown in the Places where they are designed to remain; for as they have downright carrotty Roots, they do not bear transplanting well. They require a moist light Soil, and thrive best in a shady Situation. The best Method is, to sow the Seeds in Rills, which should be made about eighteen Inches asunder, and about half an Inch deep. In the Spring, when the Plants come up, they should be carefully cleared of Weeds; and where the Plants are too close, they should

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be thinned, leaving them about six or seven Inches apart, that they may have room to grow; but the first Sort should be allowed a greater Share of Room, because it grows very large, often rising to the Height of six or seven Feet, and spreads its Leaves near two Feet each way.

In two Years after the Seeds are sown, the Plants (if they have thriven well) will be strong enough to produce their Flower-stems; when they will begin to shoot up in *April*, and their Flowers will appear in *June*, but their Seeds will not ripen till the End of *August* or *September*. These Plants will continue some Years, and annually produce Seeds; therefore the Ground should be carefully dug between the Plants every Spring, and constantly kept clean from Weeds, which is all the Culture the Plants will require.

ORNITHOGALUM, Star of Bethlehem.

To this Article must be added;

1. ORNITHOGALUM *angustifolium spicatum maximum*. C. B. P. The greatest narrow-leaved spiked Star of Bethlehem.

2. ORNITHOGALUM *spicatum seu comosum, flore lacteo*. C. B. P. Spiked or branchy Star of Bethlehem, with a milk-white Flower.

3. ORNITHOGALUM *majus spicatum alterum*. C. B. P. Another great spiked Star of Bethlehem, commonly called the Star of Constantinople.

4. ORNITHOGALUM *spicatum, flore viridi lactescente*. C. B. P. Spiked Star of Bethlehem, with a whitish green Flower.

5. ORNITHOGALUM *spicatum album*. C. B. P. White spiked Star of Bethlehem.

6. ORNITHOGALUM *luteum sive pallidum majus*. C. B. P. Greater yellow or pale Star of Bethlehem.

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7. ORNITHOGALUM *luteum, magno flore*. C. B. P. Yellow Star of Bethlehem, with a large Flower.

8. ORNITHOGALUM *luteum minus*. C. B. P. Smaller yellow Star of Bethlehem.

9. ORNITHOGALUM *Lusitanicum, capillaceo folio, luteum*. Inst. R. H. Yellow Portuguese Star of Bethlehem, with a capillaceous Leaf.

10. ORNITHOGALUM *spicatum unifolium, flore niveo odorato*. Vir. Lusit. Spiked Star of Bethlehem, with one Leaf, and a sweet-smelling snowy Flower.

11. ORNITHOGALUM *umbellatum maximum*. C. B. P. The greatest umbellated Star of Bethlehem, commonly called the Star of Alexandria.

12. ORNITHOGALUM *umbellatum majus angustifolium*. C. B. P. Greater narrow-leaved Star of Bethlehem, with umbellated Flowers.

13. ORNITHOGALUM *umbellatum album medium latifolium*. C. B. P. White middle broad-leaved umbellated Star of Bethlehem.

14. ORNITHOGALUM *album minus*. C. B. P. Smaller white Star of Bethlehem.

15. ORNITHOGALUM *umbellatum, flosculis ex albo subcæruleis*. C. B. P. Umbellated Star of Bethlehem, with whitish blue Flowers.

16. ORNITHOGALUM *latifolium & maximum*. C. B. P. The greatest broad-leaved Star of Bethlehem.

17. ORNITHOGALUM *latifolium alterum*. C. B. P. Another broad-leaved Star of Bethlehem.

18. ORNITHOGALUM *orientale villosum, flore luteo magno*. Tourn. Cor. Eastern hairy Star of Bethlehem, with a large yellow Flower.

19. ORNITHOGALUM *Samium villosum umbellatum album*. Tourn. Cor. Hairy white umbellated Star of Bethlehem of Samos.

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20. ORNITHOGALUM *Africanum luteum odoratum, foliis cepaceis, radice tuberosâ. H. L.* Yellow sweet-smelling *African Star of Bethlehem*, with onion Leaves, and a tuberosè Root.

The ten Sorts first mentioned are all of them very hardy, and may be propagated by Off-sets, which are sent out from their Roots in great Plenty. They grow wild in *Spain, Portugal* and *Italy*, from whence their Roots have been obtained by those Persons who are curious in collecting of Flowers.

The five following Sorts are also very hardy, and may be treated as the former; these produce their Flowers in form of an Umbrella, on the Top of their Stalks, whereas the other Sorts grow on Spikes. They are all of them very pretty Flowers, and are proper to adorn the open Borders of the Flower-garden, because they require very little Care to preserve them, and make an agreeable Variety, when they are intermixed with other hardy Flowers.

The first, second and third Sorts, which are mentioned in the former Volumes of the *Gardeners Dictionary*, grow wild in several Places in the *North of England*, from whence their Roots may be procured. These will thrive very well in shady Borders, and require a pretty strong Soil, in which they will flower much stronger, than when they are planted in a rich warm Soil.

The seventh Sort, mentioned in the former Volumes of the *Dictionary*, is the least to be valued of all the Kinds; for the Flowers are large, and have no Beauty; and so soon as the Seed-vessels begin to swell, their Weight breaks down the Stalks; so that where they are not supported with Sticks, they fall

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to the Ground, and make a bad Appearance. This Sort sends forth such Numbers of Off-sets, that when it hath been a very few Years an Inhabitant in any Garden, it will be very difficult to root out again; so that it should never have room in the Borders amongst other valuable Flowers.

The eleventh Sort here mentioned is very common in many Gardens near *London*, but it rarely produces any Flowers. This multiplies very fast by Off-sets, so as in few Years to stock a whole Garden. The Leaves and Bulbs of this Plant are very like those of the Hyacinth of *Peru*, so that many Persons have taken it for one of that Kind. These Roots have been brought over from *Italy* in great Plenty of late Years, by the Persons who import Orange-trees; but I have not yet heard, that any of them have produced Flowers in *England*. *Clusius*, in his History of Plants, says, he never saw one of them in Flower, unless the Root was brought fresh from *Constantinople*; for he observes, that except the Root have conceived a Flower in the Womb, they will never produce any, when they are transplanted to colder Countries.

The sixteenth, seventeenth, eighteenth and nineteenth Sorts, are as yet very rare in *England*: these grow in the *Archipelago*; and I have been informed by a very curious Gentleman, that they grow in great Plenty in the Island of *Zant*, from whence their Roots may be easily obtained, by the Ships that bring over the Currans. The best Method to bring them over, would be to have the Roots taken out of the Ground, soon after their Flower-stems and Leaves decay, and to dry them in a shady Place. Then they may be hung up in the Ship, in Nets, (as is

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practised for Onions) to prevent their rotting by Moisture, and to secure them from Vermin: and if they are four Months or longer out of the Ground, they will do very well, provided the Roots are sound.

All these Sorts may be cultivated by Seeds, by which Method there may be some new Varieties obtained; but there are very few Persons who are curious to propagate them this way, because they multiply so fast by Off-sets. But whoever is willing to try this Method, may follow the Directions given for raising Narcissus's, which is exhibited in the former Volumes of the Dictionary.

The twentieth Sort was formerly more common in the *English* Gardens than at present. This Kind, being more tender than either of the former, should be planted in Pots filled with fresh light Earth, and in Winter must be placed in an airy Glass-case, amongst Sedums, Ficoides's, and such other pretty hardy succulent Plants, which require a large Share of Air in mild Weather; and in Summer they may be removed out of the House, and placed in a warm sheltered Situation; observing never to give these Plants much Water when they are not in a growing State, lest it rot their Roots; but when they are growing freely, they must be frequently refreshed with Water. These Roots should be transplanted every Year; the best Time to perform this Work, is soon after their Flower-stems are decayed, when the Roots will be in the most inactive State. When this is done, the Off-sets should be carefully taken off, and each transplanted into a separate small Pot filled with light fresh Earth, and may be treated as the old Roots.

OROBUS, Bitter-vetch.

To this Article must be added;

1. OROBUS *sylvestris angustifo-*

lius, asphodeli radice. C. B. P. Narrow-leaved wild Bitter-vetch, with an asphodel Root.

2. OROBUS *sylvaticus, foliis nervosis.* Inst. R. H. Wild or wood Bitter-vetch, with Leaves full of Nerves.

3. OROBUS *Creticus latifolius incanus.* Inst. R. H. Broad-leaved hoary Bitter-vetch of Candy.

4. OROBUS *orientalis latifolius villosus, flore croceo.* Tourn. Cor. Broad-leaved hairy Eastern Bitter-vetch, with a saffron-coloured Flower.

5. OROBUS *Americanus, fructu coccineo, nigra macula notato.* Inst. R. H. American Bitter-vetch, with scarlet Fruit, marked with a black Spot, commonly called wild Liquorice by the Inhabitants of America.

6. OROBUS *Americanus erectus, foliorum pinnis angustis & subtus incanis, siliquis glabris.* Houst. Upright American Bitter-vetch, with narrow Leaves, which are hoary underneath, and smooth Pods.

7. OROBUS *Americanus latifolius argenteus, flore purpureo.* Houst. Broad-leaved silvery American Bitter-vetch, with a purple Flower.

8. OROBUS *Americanus procumbens & hirsutus, flore purpureo.* Houst. Trailing hairy American Bitter-vetch, with a purple Flower.

9. OROBUS *Americanus procumbens minimus angustifolius, flore coccineo.* Houst. The least narrow-leaved trailing Bitter-vetch of America, with a scarlet Flower.

The four Sorts first-mentioned are very hardy Plants: these may be propagated by sowing of their Seeds in the Spring, on a Border of fresh Earth, exposed only to the Morning Sun; and when the Plants come up, they should be carefully cleared from Weeds, and thinned where they are too close. The *Michaelmas* following, they should be taken up and trans-

transplanted where they are designed to remain, which should be in a shady Place, or under Trees in Wilderness Quarters, where these Plants will thrive exceeding well, and when they flower in the Spring, will make an agreeable Variety, in such Places where better Plants will not live, which renders them worthy of a Place in large Gardens.

The fifth Sort is very common in the warmest Parts of *America, Asia, and Africa*. The Seeds of this Sort are frequently brought to *England* from the *West-Indies* for their Beauty; being round and hard, and of a bright scarlet Colour, with a black Eye, and are somewhat less than Peas. These Seeds are by the Inhabitants of the Countries, where they naturally grow, strung, and worn about their Necks for Ornament. And the Leaves of the Plant are sometimes used instead of Liquorice, being esteemed good for the dry Gripes.

This Plant twists itself round whatever Trees or Shrubs grow near it, and will rise to the Height of ten or twelve Feet, and will continue several Years. The Flowers are produced on slender Foot-stalks, growing in a close Spike or Bunch, which are shaped like those of the Kidney-bean, and are of a pale purple Colour: these are succeeded by short thick Pods, in which are contained the Seeds.

The sixth Sort was discovered by the late Dr. *Houftoun* in *Jamaica*, and the seventh, eighth and ninth Sorts, were discovered by the same Gentleman, at *La Vera Cruz* in the *Spanish West-Indies*. These five last-mentioned Sorts, being Natives of warm Countries, are very tender; and must be preserved in Stoves, otherwise they will not live in *England*. These are propagated by Seeds, which should be sown early in the Spring, in small

Pots, filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark, observing frequently to moisten the Earth, otherwise the Seeds will not grow (especially those of the fifth Sort, which are very hard, and will sometimes remain a whole Season in the Ground, where they are kept dry). When the Plants come up, they should be carefully taken out of the Pots, and each transplanted into separate small Pots, filled with rich Earth, and then plunged again into the Tan-bed, observing to shade them until they have taken Root; after which time they should have fresh Air admitted to them every Day in warm Weather, and must be frequently watered. With this Management the Plants will make a great Progress, and in a few Weeks those of the fifth Sort will reach the Glasses of the Hot-bed, unless the Frame be very high; when these should be taken out, and plunged into the Bark-bed in the Stove, where they may have room to grow. These Plants should be supported by Sticks, or placed near a Trellice, to which they should be fastened, otherwise they will trail about whatever Plants grow near them.

The other Sorts, being of humbler Growth, may be kept in the Hot-bed until *Michaelmas*, when the Nights begin to be cold; at which time they should be removed into the Stove, and plunged into the Bark-bed, where they must be treated as other tender Exotic Plants; by which Method they may be preserved thro' the Winter, and the following Summer they will produce Flowers. These Plants are perennial, so that if they should not perfect their Seeds, the Plants may be maintained for several Years.

OSMUNDA, The Osmund Royal, or flowering Fern.

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This is one of the Kinds of Fern which is distinguished from the other Sorts, by its producing Flowers on the Top of the Leaves, whereas the others for the most part produce them on the Back of their Leaves.

There is but one Kind of this Plant, which grows wild in *England*; tho' there are several Sorts of them which grow in *America*; but as they are seldom kept in Gardens, I shall not enumerate their *Species*.

The common Sort grows on Bogs in several Parts of *England*; and whoever hath an Inclination to transplant it into Gardens, should place it in a moist shady Situation, otherwise it will not thrive.

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PÆONIA, Piony.

To this *Article* must be added;

1. PÆONIA *mas, foliorum segmentis amplioribus*. C. B. P. Male Piony, with Leaves having broader Segments.

2. PÆONIA *tenuius laciniata, subtus pubescens, flore purpureo*. C. B. P. Piony with narrow jagged Leaves, which are downy underneath, and a purple Flower.

3. PÆONIA *aquilinae foliis*. C. B. P. Piony with a columbine Leaf.

4. PÆONIA *flore variegato*. C. B. P.

5. PÆONIA *folio subtus incano, flore albo vel pallido*. C. B. P. Piony with Leaves hoary underneath, and white or pale Flowers.

These Sorts are all of them as hardy as those mentioned in the former Volumes of the *Gardeners Dictionary*, and may be propagated in the same manner as is there directed: therefore I shall not repeat it here.

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PALMA, The Palm-tree.

To this *Article* must be added;

1. PALMA *cujus fructus sessilis Faufel dicitur*. C. B. P. The Palm-tree whose Fruit is called Faufel.

2. PALMA *altissima non spinosa, fructu oblongo*. Houst. The tallest smooth Palm-tree, with oblong Fruit, called Mountain Cabbage.

3. PALMA *coccifera, complicato folio, fructu minore*. H. L. The nut-bearing Palm, with a folded Leaf, and smaller Fruit.

4. PALMA *Malabarica, flosculis stellatis, fructu longo squamato*. Plum. Palm-tree of *Malabar*, with small starry Flowers, and a long scaly Fruit.

5. PALMA *dactylifera, fructu acerrimo*. Plum. Date-bearing Palm-tree, with a sharp Fruit.

6. PALMA *montana Malabarica, folio magno complicato acuto, flore albo racemoso, fructu rotundo*. Plum. Mountain Palm-tree of *Malabar*, with a large sharp folded Leaf, white Flowers growing in Bunches, and a round Fruit.

7. PALMA *prunifera Japonensis*. H. L. B. Plum-bearing Palm of *Japan*.

8. PALMA *dactylifera & vini-fera*. Plum. Date and wine-bearing Palm-tree.

9. PALMA *dactylifera aculeata minima*. Plum. The least prickly date-bearing Palm-tree.

10. PALMA *coccifera, costarum lateribus aculeatis*. Plum. Nut-bearing Palm-tree, with Spines growing on the Stalks.

11. PALMA *dactylifera latifolia*. Plum. Broad-leaved date-bearing Palm-tree.

12. PALMA *Indica coccifera angulosa*. C. B. P. The Cocoa Nut, *vulgò*.

The first Sort here mentioned is a Native of the *East-Indies*: the Fruit of

of this Kind is directed by the College of Physicians to be used in Medicine, but it is rarely brought to *England*. The second Sort was discovered by the late Dr. *Houfoun*, growing on the Hills near *La Vera Cruz*; the Fruit of this Kind is about an Inch and half in Length, and near two Inches in Circumference. The Flower-buds, which are produced in the Centre of the Plants, are by the Natives cut, and boiled to eat with their Meat, and are by them called the Mountain Cabbage.

The third Sort grows plentifully in several Parts of the *Spanish West-Indies*, from whence I have received the Fruit. These Fruit are shaped exactly like the Cocoa-nut, and are inclosed in a Shell in the same manner as that; but these are not so large as a Man's Fist, whereas the Cocoa-nuts are larger than a Man's Head.

The fifth, sixth, eighth, ninth, tenth and eleventh Sorts, grow in several Places in the *East and West-Indies*; for by several Writers they are mentioned to grow in the *East*, and I have received Fruit of all these Sorts from the *West-Indies*.

The seventh Sort is a Native of the *East-Indies*, from whence the Fruit have been brought to *England*; but I have not heard, that this Kind grows in any Part of *America*. This is one of the most beautiful Plants of all the Kinds of Palms, and deserves a Place in every good Stove. It is also of quicker Growth, than most of the other Sorts; for I have known a Plant of this Kind rise to have a fine Stem, in eight or nine Years from the sowing; whereas some of the other Kinds will not form a Stem in twenty Years.

These Sorts may be all propagated by their Fruit, which should be put into Pots early in the Spring of the

Year, and plunged into a Hot-bed of Tanners Bark; and when the Plants are come up, they should be treated in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*; wherefore I shall not repeat it here; but must take notice, that some of these Sorts, whose Fruit have hard Shells, will remain in the Ground a whole Year before the Plants will come up; so that the Fruit should not be thrown out of the Pots, unless they are rotten.

The Cocoa-nut is cultivated in most of the inhabited Parts of the *East and West-Indies*, but is thought a Native of the *Maldives*, and the desert Islands of the *East-Indies*: from whence it is supposed it hath been transported to all the warm Parts of *America*; for it is not found in any of the inland Parts, nor anywhere far distant from Settlements. It is one of the most useful Trees to the Inhabitants of *America*, who have many of their common Necessaries of Life from it. The Bark of the Nut is made into Cordage, the Shell of it into Drinking-bowls; the Kernel of the Nut affords them a wholesome Food, and the Milk contained in the Shell, a cooling Liquor. The Leaves of the Trees are used for thatching their Houses, and are also wrought into Baskets, and most other things which are made of Osiers in *Europe*.

This Tree is propagated by planting of the Nuts, which in six Weeks or two Months after planting will come up, provided they are fresh, and thoroughly ripe, which is what few of them are, which are brought to *England*; for they always gather them before they are ripe, that they may keep during their Passage. So that the best way to bring the Nuts to *England* for planting, would be to

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take such of them as are fully ripe, and put them up in dry Sand in a Tub, where the Vermin may not come to them; and these will often sprout in their Passage, which will be an Advantage, because then they may be immediately planted in Pots of Earth, and plunged into the Bark-bed.

These Plants in the hot Islands of *America* make considerable Progress in their Growth, in which Places there are some Trees of very great Magnitude; tho' in *Europe* this Plant is of much slower Growth, being many Years before it advances to any considerable Height: but as the young Leaves of these Plants are pretty large, they make a good Appearance amongst other tender Exotic Plants, in one or two Years time. This Plant is preserved in some curious Gardens in *England*, for Variety, where it must be placed in the Bark-stove, and managed as hath been directed for the other Kinds of Palms; observing, as often as they are transplanted, not to cut their strong Roots, which is generally Death to most of the Palm-kind. These Plants must not be too much confined in their Roots; for if they are, they will make but little Progress: therefore, when the young Plants have filled the Pots with their Roots, they should be shifted into Tubs of a moderate Size, that their Roots may have room to extend; but these Tubs must be kept constantly plunged into the Bark-bed, otherwise the Plants will not thrive. The Method of raising these Plants from the Nuts, when they are planted before they have sprouted, is fully described under the Article of raising *Exotic Seeds*, in the former Volumes of the *Gardeners Dictionary*, to which the Reader is desired to turn, to avoid Repetition.

All the Sorts of Palm-trees are Male and Female in different Trees, and it hath been always supposed necessary, that the two should grow near each other, that the Male Tree might impregnate the Female, in order to render the Female fruitful; and where it has so happened that a Female Tree grew singly, it has been asserted, that the Inhabitants have carried Branches of the Male Flowers, taken from Trees which grew at a Distance, and have fastened them to the Female Trees, without which they have insisted that the Female Trees would not produce any Fruit. But this is refuted by Father *Labat*, who affirms that he knew a single Tree of the date-bearing Palm, which grew by the Side of an ancient Convent in *Martinico*, which produced a large Quantity of fair Fruit annually; though there was not any other Palm-tree, which grew within two Leagues of this: but he also affirms, that the Stones of these Dates would not grow; for they had planted many of them for several Years successively, without ever raising a single Plant; and were afterwards obliged to procure some Dates from *Barbary*, in order to propagate them: so that he conjectures, that all the Female Trees may produce Fruit, which may appear very fair to the Eye; but upon Examination, they will be found to want the Germ or Bud, which is the Embryo of the future Plant.

This may account for the Fruit of the different Sorts of Palms not growing when they are brought to *England*; for if they are gathered from a Tree growing singly, having no Male Tree near it to impregnate the Ovary, it may be the true Cause why they do not succeed. Therefore those Persons who collect these Fruit to propagate them, should always observe to take them from such
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Trees, as grow in the Neighbourhood of the Male.

PANCRATIUM, Sea-daffodil.

The Characters are ;

It hath a tubulous, lily-shaped Flower, consisting of one Leaf, which is deeply cut into six Parts; in the Middle is a Cup, which is bell-shaped and six-cornered, having a Ghrive proceeding from each Corner, and is joined thereto as a Part of the Cup, being of the same Colour at Bottom; but the Part immediately under the Apex is green: in the Centre rises the Pointal, which extends beyond the Chives. The Empalement afterwards becomes a roundish Fruit, which is triangular, and divided into three Parts containing many flat or roundish Seeds.

The Species are ;

1. **PANCRATIUM** *Monspesulanum*, *multis Scilla alba parva*. J. B. Sea-daffodil of *Montpelier*, by many called the lesser white Squill.

2. **PANCRATIUM** *floribus rubris*. Lob. Icon. Sea-daffodil with red Flowers.

3. **PANCRATIUM** *Illyricum, floribus albis*. Sea-daffodil of *Illyrium*, commonly called the third *Narcissus* of *Matthiolus*.

4. **PANCRATIUM** *Americanum, floribus niveis, odore balsami Peruviani*. American Sea-daffodil, with snowy Flowers, smelling like the Balsam of Peru.

5. **PANCRATIUM** *Americanum, foliis latissimis, floribus niveis majoribus, odore balsami Peruviani*. American Sea-daffodil, with very broad Leaves, and large snowy Flowers, smelling like the Balsam of Peru.

6. **PANCRATIUM** *alterum vernum Indicum*. J. B. Another Indian Sea-daffodil of the Spring.

7. **PANCRATIUM** *Zeylanicum, flore albo odorato*. Sea-daffodil of *Ceylon*, with white sweet-smelling Flowers.

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The first Sort is very common on the Sea-coasts of the *Mediterranean*, where it grows in the Sands. The second is a Variety of the first, differing only in the Colour of its Flower. The third Sort grows plentifully on the Sands near *Naples*, and in *Sicily*, as also in several Islands of the *Archipelago*, but particularly in *Zant*, where all the Ditches are stored with it.

These Plants are very hardy in respect to Cold, and may be propagated by Off-sets from the Roots; for though they produce ripe Seeds in *England*, yet as the seedling Plants are many Years before they come to flower, they are seldom propagated that way. These Roots should be transplanted in *July*, after the Leaves and Flower-stems are decayed; they should be planted in an East-border, where they will thrive very well, and continue longer in Flower, than when they are more exposed to the Sun: but in every other respect they may be treated as hath been directed for the better Sort of *Narcissus*.

The other four Sorts are very tender, and will not live in *England*, unless they are preserved in the warmest Stoves. These may be procured from the Countries of their natural Growth, from whence their Bulbs may be easily brought, if they are taken out of the Ground when their Leaves begin to decay; and after drying them in the Shade, they should be put up in Nets or Bags, and hung up, that the Vermin may not come to them.

The fourth Sort is very common in *Jamaica*, and most of the Islands of *America*: the fifth Sort was brought from the *Bahama* Islands; the sixth is very common in the *Spanish West-Indies*, and the seventh is a Native of the Island of *Ceylon*.

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All these Plants increase by Offsets from their Roots, and flower extremely well, if they are planted in Pots filled with light rich Earth, and plunged into the Bark-bed in the Stove, and managed as hath been directed for the tender Sorts of Lilio-Narcissus.

PANICUM, Panic.

The Characters are ;

It is a Plant of the millet Kind, differing from that, by the Disposition of the Flowers and Seeds, which, of this, grow in a close thick Spike.

The Species are ;

1. PANICUM Germanicum, *five paniculâ minore flavâ. C. B. P.* Yellow German Panic, with a smaller Spike.

2. PANICUM Germanicum, *five paniculâ minore albâ. C. B. P.* White German Panic, with a smaller Spike.

3. PANICUM Germanicum, *five paniculâ minore purpureâ. C. B. P.* Purple German Panic, with a smaller Spike.

4. PANICUM Italicum, *five paniculâ majore. C. B. P.* Italian Panic, with a larger Spike.

5. PANICUM Indicum, *spicâ obtusâ cœruleâ. C. B. P.* Indian Panic, with a blue obtuse Spike.

6. PANICUM Indicum, *spicâ longissimâ. C. B. P.* Indian Panic, with a very long Spike.

7. PANICUM Americanum, *spicâ obtusâ brevi. Inst. R. H.* American Panic, with a short obtuse Spike.

8. PANICUM Americanum, *spicâ longiore acutâ. Inst. R. H.* American Panic, with a longer pointed Spike.

9. PANICUM Indicum altissimum, *spicis simplicibus mollibus, in foliorum alis longissimis pediculis insidentibus. Inst. R. H.* The tallest Indian Panic, with a soft single Spike, which is produced on a long Foot-stalk from the Wing of the Leaf.

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The three first Sorts are only Varieties, which differ in the Colour of the Grain. These are sowed in several Parts of *Europe*, in the Fields, as Corn, for the Sustenance of the Inhabitants ; but it is reckoned not to afford so good Nourishment as Millet ; however it is frequently used in particular Parts of *Germany*, to make Puddings, Cakes and Bread. This is not so much esteemed as the *Italian* Sort ; but as it will ripen better in cold Countries than that, it is generally cultivated, where a better Sort of Grain will not succeed.

The Seeds of these Sorts may be sown in the Spring, at the same time as Barley is sown, and may be managed exactly in the same way : but this should not be sown too thick ; for these Seeds are very small, and the Plants grow stronger, therefore require more room. The *German* Sort doth not grow above three Feet high, unless it is sown on very rich Land, in which Case it will rise to be four Feet high ; but the Leaves and Stems of this Corn are very large, and require to stand four or five Inches apart, otherwise they will grow up weak, and come to little. These large growing Corns should be sown in Drills at about eighteen Inches apart, so that the Ground may be houghed between the Rows of Corn, to keep them clear from Weeds, and the stirring of the Ground will greatly improve the Corn. In *July* the Corn will ripen, when it may be cut down and dried, and then should be housed.

The *Italian* Panic grows much larger than the *German*, and produces much larger Spikes ; wherefore it should be allowed more room to grow, otherwise it will come to little. This is also later before it ripens, and is not very proper for cold Countries.

The other Sorts are Natives of very warm Countries, where they are used by the Inhabitants to make Bread. These grow very large, and require a good Summer, otherwise they will not ripen in this Country. The Seeds of these Kinds should be sown the latter End of *March*, or the Beginning of *April*, on a Bed of light rich Earth, in a warm Situation. They should be sown in Drills about three Feet asunder; and when the Plants come up, they must be kept clear from Weeds, and thinned where they are too close. When the Plants are grown pretty tall, they should be supported by Stakes, otherwise the Winds will break them down; and when the Corn begins to ripen, the Birds must be kept from it, otherwise they will soon destroy it. These Sorts are preserved in some curious Gardens for the sake of Variety, but they are not worth cultivating for Use in *England*.

PARKINSONIA.

The Characters are ;

It hath a polypetalous anomalous Flower, consisting of five dissimilar Leaves, from whose Cup arises the Pointal, which afterward becomes a rough jointed Point, each Knot or Joint containing one kidney-shaped Seed.

We know but one Species of this Plant ; which is,

PARKINSONIA aculeata, foliis minutis, uni costæ adnexis. Plum. Nov. Gen. Prickly Parkinsonia, with very small Leaves, fastened to one middle Rib.

This Plant was discovered by Father *Plumier* in *America*, who gave it this Name in Honour to the Memory of Mr. *John Parkinson*, who published an universal History of Plants in *English*, in the Year 1640.

It is very common in the *Spanish West-Indies*, but of late Years it has been introduced into the *English Set-*

tlements in *America*, for the Beauty and Sweetness of its Flowers. This, in the Countries where it grows, naturally rises to be a Tree of twenty Feet high or more, and bears long slender Bunches of yellow Flowers, which hang down after the same manner as the Laburnum. These Flowers have a most agreeable sweet Scent, so as to perfume the Air to a considerable Distance round about the Trees ; for which Reason the Inhabitants of the *West-Indies* plant them near their Habitations. And though this Plant has not been introduced many Years into the *English Settlements*, yet it is now become so common in all the Islands, that but few Houses are without some of the Trees near it ; for it produces Flowers and Seeds in Plenty, in about two Years, from Seed ; so that it may soon be made common in all hot Countries : but in *Europe* it requires a Stove, otherwise it will not live through the Winter.

This Plant is propagated by Seeds, which should be sown in small Pots filled with light fresh Earth early in the Spring, and the Pots must be plunged into a Hot-bed of Tanners Bark, where, in about three Weeks or a Month's time, the Plants will come up ; when they should be kept clear from Weeds, and frequently refreshed with Water. In a little time these Plants will be fit to transplant ; which should be done very carefully, so as not to injure their Roots. They must be each planted into a separate half-penny Pot filled with light fresh Earth, and then plunged into the Hot-bed again, observing to stir up the Tan ; and if it hath lost its Heat, there should be some fresh Tan added, to produce the Heat again. Then shade the Plants from the Heat of the Sun, until they have taken new Root ; after which
time

time they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season, by raising the Glasses of the Hot-bed with Bricks or Stones; and they must be constantly supplied with Water every other Day, in warm Weather. With this Management the Plants will grow so fast, as to fill the Pots with their Roots by the Beginning of *July*. At which time they should be shifted into Pots a little larger than the former, and plunged again into the Bark-bed, provided the Plants are not too tall to remain under the Frame, without Danger of being scorched by the Glasses; in which Case they must be plunged into the Bark-bed in the Stove, where they may have room to grow.

As these Plants are very tender, they should be constantly kept in the Bark-stove, with other tender Exotic Plants of the same Country, observing in the Winter Season to refresh them two or three times a Week with Water, but it should be given to them sparingly in cold Weather. In Summer they must be supplied more plentifully with Water, and should have a large Share of free Air in hot Weather. The Plants must also be shifted every Year, and as they grow in Magnitude, they should be allowed larger Pots, being careful not to over-pot them; which is very injurious to most Plants, but especially to these very tender ones. If the Plants thrive, they will produce Flowers the third Year, when they will make a fine Appearance in the Stove.

PARNASSIA, Grass of *Parnassus*.

The Characters are;

It hath a rose-shaped Flower, consisting of five large Leaves, and five at the Bottom which are small, fringed, of a greenish Colour, and placed orbicularly; out of the Flower-

cup rises the Pointal, which afterward turns to a membranaceous Fruit, which is oval, having but one Cell, which is filled with Seeds, that for the most part adhere to a four-fold Placenta.

The Species are;

1. PARNASSIA *palustris* & *vulgaris*. *Inst. R. H.* Common Marsh-grass of *Parnassus*.

2. PARNASSIA *vulgaris, flore pleno*. Common Grass of *Parnassus*, with a double Flower.

The former of these Sorts grow wild in moist Meadows, in several Parts of *England*, but particularly in the North; but it doth not grow in the Neighbourhood of *London*, any nearer than on the other Side of *Watford*, in the low Meadows by *Cassio-berry*, where it is in pretty great Plenty.

The other Sort is an accidental Variety of the former, which has been discovered wild, and transplanted into Gardens. This is but rarely to be found, being in very few Gardens at present.

These Plants may be taken up from the natural Places of their Growth, with Balls of Earth to their Roots, and planted into Pots filled with pretty strong fresh undunged Earth, and placed in a shady Situation, where, if they are constantly watered, they will thrive very well, and flower every Summer. But if the Plants are planted in the full Ground, it should be in a very moist shady Border, otherwise they will not live; and these should be as duly watered, as those in the Pots in dry Weather, to make them produce strong Flowers.

They may be propagated by parting of their Roots, which should be done in *March*, before they put out new Leaves; but the Roots should not be divided too small, for they will

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prevent their Flowering the following Summer ; these Roots should always be planted in pretty strong fresh Earth, for they will not thrive in a light rich Soil. In the Spring they must be constantly watered, if the Season should prove dry, otherwise they will not flower; nor should they be parted oftener than every other Year, to have them strong. These Plants flower in July, and their Seeds are ripe the latter End of August.

It is called *Parnassia*, from Mount *Parnassus*, on which it was supposed to grow ; and from the Cattle feeding on it, it was called a Grass, though the Plant has no Resemblance to any of the Grass-kind, but is more like to the *Ranunculus* in Flower, and the Leaves are pretty broad, oblong and smooth.

PARONYCHIA, Mountain Knot-grafs.

The Characters are ;

It hath an apetalous Flower, consisting of several Chives, which rise from the Flower-cup, which is shaped like the Pelvis, and cut into five Parts for the most part like a Crown ; the Pointal afterward becomes a round Seed, wrapt up in a five-cornered Husk, which was before the Flower-cup.

The Species are ;

1. *PARONYCHIA Hispanica*. *Clus. Hisp.* Spanish Mountain Knot-grafs.

2. *PARONYCHIA Narbonensis erecta*. *Inst. R. H.* Upright mountain Knot-grafs of Narbonne.

3. *PARONYCHIA Hispanica supina asinefolia, capitulis minus compactis*. *Inst. R. H.* Mountain Knot-grafs, with a chickweed Leaf, and the Heads less compact.

4. *PARONYCHIA Hispanica fruticosa, myrti folio*. *Inst. R. H.* Shrubby Spanish mountain Knot-grafs, with a myrtle Leaf.

5. *PARONYCHIA Lusitanica, poly-*

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goni folio, capitulis echinatis. *Inst. R. H.* Portugal mountain Knot-grafs, with prickly Heads.

6. *PARONYCHIA orientalis humifusa, serpilli folio*. *Tourn. Cor.* Dwarf Eastern mountain Knot-grafs, with a Mother of Thyme-leaf.

The five Sorts first-mentioned grow wild in Spain, Portugal and the South of France, where they generally are found near the Sea, on the Sides of Banks ; but the sixth Sort was discovered by Dr. Tournefort in the Levant. They are all (except the second and fourth Sorts) low Plants, which trail on the Ground, in the same manner as our common Knot-grafs, but continue several Years.

These Plants are preserved by those who are curious in Botany, for the sake of Variety ; but are seldom admitted into other Gardens : though the first Sort may have room in every good Garden, for the fine Appearance it makes in Autumn, when the silvery scaly Heads, which are produced at every Joint of the Branches, make a goodly Shew.

They may all be propagated by sowing of their Seeds on a Bed of light fresh Earth, in an open Situation, about the middle or latter End of March ; and when the Plants come up, they should be carefully weeded ; and if the Season should prove dry, they must be now-and-then watered. When the Plants are large enough to transplant, they should be carefully taken up, and some of them planted in Pots, and the others on a warm Border, where they may be sheltered in Winter, otherwise they will not live in this Country. Those which are planted in Pots, should be placed under a Hot-bed Frame, where they may be screened from hard Frosts ; but should have as much free Air as possible in mild

mild Weather. With this Management the Plants may be preserved many Years, and will flower every Season; but they rarely produce any Seeds in this Country.

PARTHENIASTRUM, Bastard Feverfew.

The Characters are;

It hath a radiated discous Flower, consisting of several Florets, which occupy the Disk, but are barren; the half Florets, which are shaped like a Heart, are succeeded by black Seeds, which are naked, having no Down adhering to them: to which may be added, The Flower-cup is simple, and cut into five Parts to the Bottom.

The Species are;

1. PARTHENIASTRUM *artemisiae folio, flore albo.* Acad. Reg. Scien. Bastard Feverfew, with a mugwort Leaf, and a white Flower.

2. PARTHENIASTRUM *helenii folio.* Hort. Elth. Bastard Feverfew, with an elecampane Leaf.

The first Sort grows wild in great Plenty in the Island of *Jamaica*, and in some other of the *English* Settlements in the *West-Indies*; where it is called wild Wormwood, and is used by the Inhabitants as a vulnerary Herb.

The second Sort grows plentifully in several Parts of the *Spanish West-Indies*, from whence the Seeds have been brought to *Europe*.

These are both annual Plants, which may be propagated by sowing of their Seeds on a Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted on another Hot-bed, at about five or six Inches Distance, observing to water and shade them until they have taken new Root; after which time they must have a pretty large Share of fresh Air in warm Weather, by raising of the Glasses of the Hot-bed every Day; and they must be duly

watered every other Day at least. When the Plants have grown so as to meet each other, they should be carefully taken up, preserving a Ball of Earth to their Roots, and each planted into a separate Pot, filled with light rich Earth; and if they are plunged into a moderate Hot-bed, it will greatly facilitate their taking fresh Root; but where this Convenience is wanting, the Plants should be removed to a warm sheltered Situation, where they must be shaded from the Sun until they have taken new Root; after which time they may be exposed, with other tender annual Plants, in a warm Situation, where they will flower in *July*, and their Seeds will ripen in *August*. But if the Season should prove cold and wet, it will be proper to have a Plant or two in Shelter, either in the Stove, or under tall Frames, in order to have good Seeds, if those Plants which are exposed should fail; whereby the Species may be preserved.

PASTURE.

Pasture Ground is of two Sorts; the one is low Meadow-land, which is often overflowed; and the other is Up-land Pasture, which lies high and dry. The first of these will produce a much greater Quantity of Hay than the latter, and will not require Manuring or Feeding so often; but then the Hay produced on the Up-land is much preferable to the other, as is also the Meat which is fed on the Up-land, more valued than that which is fatted in rich Meadows: though the latter will make the fatter and larger Cattle, as is seen by those which are brought from the low rich Lands of *Lincolnshire*. But where People are nice in their Meat, they will give a much larger Price for such as hath been fed on the Downs, or in short Up-land Pasture, than for the other, which is much larger.

larger. Besides this, dry Pastures have an Advantage over the Meadows, that they may be fed all the Winter, and are not so subject to poach in wet Weather; nor will there be so many bad Weeds produced, which are great Advantages, and do in a great measure recompense for the Smallness of the Crop.

I have already mentioned the Advantages of Meadow-land, or such as is capable of being overflowed with Water, and given Directions for draining and improving low Pasture-land, in the Article of *Land*; wherefore I shall not repeat that here, but shall just mention some Methods for improving of Up-land Pasture.

The first Improvement of Up-land Pasture, is by fencing of it, and dividing of it into small Fields, of four, five, six, eight or ten Acres each, planting of Timber-trees in the Hedge-rows, which will screen the Grass from the drying pinching Winds of *March*, which prevents the Grass from growing in large open Lands; so that if *April* prove a dry Month, the Land produces very little Hay; whereas in the sheltered Fields, the Grass will begin to grow early in *March*, and will cover the Ground, and prevent the Sun from parching the Roots of the Grass; whereby it will be kept growing so as to afford a tolerable Crop, if the Spring should prove dry. But in Fencing of Land, it must be observed (as was before directed) not to make the Inclosures too small, especially where the Hedge-rows are planted with Trees; because when the Trees are advanced to a considerable Height, they will spread over the Land; and where they are close, will render the Grass sour; so that, in stead of being an Advantage, it will greatly injure the Pasture.

The next Improvement of Up-

land Pastures, is to make the Turf good, where either from the Badness of the Soil, or for want of proper Care, the Grass hath been destroyed by Rushes, Bushes, or Mole-hills. Where the Surface of the Land is clayey and cold, it may be improved by paring it off, and burning it in the manner before directed; but if it is a hot sandy Land, then Chalk, Lime, Marle or Clay, are very proper Manures to lay upon it; but this should be laid in pretty good Quantities, otherwise it will be of little Service to the Land.

If the Ground is over-run with Bushes or Rushes, it will be a great Advantage to the Land, to grub them up toward the latter Part of the Summer; and after they are dried, to burn them, and spread the Ashes over the Ground just before the Autumnal Rains; at which time the Surface of the Land should be levelled, and sown with Grass-seed, which will come up in a short time, and make good Grass the following Spring. So also, where the Land is full of Mole-hills, these should be pared off, and either burnt for the Ashes, or spread immediately on the Ground, when they are pared off, observing also to sow the bare Patches with Grass-seed, just as the Autumnal Rains begin.

Where the Land has been thus managed, it will be of great Service to roll the Turf, in the Months of *February* and *March*, with a heavy Wood-roller, always observing to do it in moist Weather, that the Roll may make an Impression. This will render the Surface level, and make it much easier to mow the Grass, than when the Ground lies in Hills; and will also cause the Turf to thicken, so as to have what the People usually term a good Bottom. The Grass will also be the sweeter for this

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Husbandry, and it will be a great Help to destroy bad Weeds.

Another Improvement of Up-land Pastures, is the Feeding of them; for where this is not practised, the Land must be manured at least every third Year; and where a Farmer hath much arable Land in his Possession, he will not care to part with his Manure to the Pasture. Therefore every Farmer should endeavour to proportion his Pasture to his arable Land, especially where Manure is scarce, otherwise he will soon find his Error; for the Pasture is the Foundation of all the Profit, which may arise from the arable Land.

Whenever these Up-land Pastures are mended by Manure, there should be a Regard had to the Nature of the Soil, and a proper Sort of Manure applied: as for Instance, all hot sandy Lands should have a cool Manure; Neats-dung and Swines-dung, are very proper for such Lands: but for cold Lands, Horse-dung, Ashes, and other warm Manures, are proper. And when these are applied, it should be done in Autumn, before the Rains have soaked the Ground, and rendered it too soft to cart on; and it should be carefully spread, breaking all the Clods as small as possible, and then harrowed with Bushes, to let it down to the Roots of the Grass. When the Manure is laid on at this Season, the Rains in Winter will wash down the Salts, so that the following Spring the Grass will receive the Advantage of it.

There should also be great Care had to the destroying of Weeds in the Pasture every Spring and Autumn; for where this is not practised, the Weeds will ripen their Seeds, which will spread over the Ground, and thereby fill it with such a Crop of Weeds, as will soon over-bear

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the Grass, and destroy it; and it will be very difficult to root them out, after they have gotten such Possession: especially Ragwort, and such other Weeds as have Down adhering to their Seeds.

These Up-land Pastures seldom degenerate the Grass which is sown on them, (if the Land is tolerably good) whereas the low Meadows which are overflowed in Winter, do in few Years turn to a harsh rushy Grass, though the Up-land will continue a fine sweet Grass for many Years without renewing.

The Grasses proper to sow on these Up-land Pastures, are, Ryegrass, Clover, Trefoil, Nonesuch, Spurrey, St. Foyn and La Lucern. The Manner of sowing and cultivating all these, is exhibited under their proper *Articles*.

PEDICULARIS, Rattle, Cockscorn, or Loufewort.

There are four different Kinds of this Plant, which grow wild in Pastures in several Parts of *England*, and in some low Meadows are very troublesome to the Pastures; especially one Sort with yellow Flowers, which rises to be a Foot high or more, and is often in such Plenty, as to be the most predominant Plant; but this is very bad Food for Cattle, and when it is mowed with the Grass for Hay, it becomes of little Value. The Seeds of this Plant are generally ripe by the time the Grass is mowed, so that whenever Persons take Grass-feed for sowing, they should be very careful that none of this Seed is mixed with it. As these Plants are never cultivated, I shall not trouble the Reader with their several Varieties.

PELECINUS.

The *Characters* are;

It hath a papilionaceous (or pea-bloom) Flower, out of whose Empale-

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ment rises the Pointal, which afterward becomes a plain bicapsular and bivalve Pod, indented on each Side like a Saw, and filled with plain kidney-shaped Seeds.

We know but one Species of this Plant; viz.

PELECINUS vulgaris. Inst. R. H. Common Pelecinus.

This Plant is preserved in Botanic Gardens, for the sake of Variety: it is an annual Plant, and the Seeds should be sown early in April, on a Bed of light fresh Earth, in Drills about eighteen Inches asunder; and when the Plants are come up, they should be carefully cleared from Weeds; and where they are too close, they should be thinned, leaving them six or eight Inches Distance in the Rows, and observe always to keep them clear from Weeds, which is all the Culture they require. These Plants spread on the Ground, and from the Wings of the upper Leaves the Flowers are produced on slender Foot-stalks, which are small, and of a dirty red Colour; these are succeeded by Pods, which are flat, and indented on both Sides, resembling the Saw of the Saw-fish.

PERESKIA, Gooseberry, vulgò.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed orbicularly; whose Cup afterward becomes a soft fleshy globular Fruit, beset with Leaves; in the middle of the Fruit, are many flat roundish Seeds, included in a Mucilage.

We know but one Species of this Plant; viz.

PERESKIA aculeata, flore albo, fructu flavescente. Plum. Nov. Gen. Prickly Pereskia, with a white Flower, and a yellowish Fruit.

This Plant grows in some Parts of the Spanish West-Indies, from

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whence it was brought to the English Settlements in America, where it is called a Gooseberry, and by the Dutch it is called Blad-apple. This Plant hath many slender Branches, which will not support themselves, but must be supported by Stakes, otherwise they will trail on whatever Plants grow near them. These Branches, as also the Stem of the Plant, are beset with long whitish Spines, which are produced in Tufts. The Leaves are roundish, very thick and succulent; and the Fruit is about the Size of a Walnut, having Tufts of small Leaves on it, and a whitish mucilaginous Pulp.

It may be propagated by planting of the Cuttings during any of the Summer Months: these Cuttings should be planted in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun in the Heat of the Day, as also to refresh them every third or fourth Day with Water. In about two Months the Cuttings will have made good Roots, when they may be carefully taken out of the Pots, and each planted in a separate Pot filled with fresh Earth, and then plunged into the Hot-bed again, where they may remain during the Summer Season; but at Michaelmas, when the Nights begin to be cold, they should be removed into the Stove, and plunged into the Bark-bed. During the Winter Season, the Plants must be kept warm, and should be watered twice a Week; but in cold Weather it should not be given to them in large Quantities. In Summer they must have a large Share of Air, and must be more plentifully watered: but they should constantly remain in the Stove; for though they will bear the open Air in Summer, in a warm Situation, yet they will

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will make no Progress, if they are placed abroad; nor do they thrive near so well in the Dry-stove, as when they are plunged in the Tan: so that the best way is to set them next a Trellace, at the Back of the Tan-bed, to which their Branches may be fastened, to prevent their trailing on other Plants. This Plant has not as yet produced either Flowers or Fruit in *England*; but as there are several Plants pretty well grown, in the Gardens of the Curious, we may expect some of them will flower in a short time.

PERICLYMENUM, Trumpet Honey-suckle.

To this *Article* must be added;

1. PERICLYMENUM *racemosum*, *flore flavescens, fructu niseo*. *Plum. Tab. Hort. Elth.* Branching Trumpet Honey-suckle, with a yellowish Flower, and a snowy Fruit, commonly called in *Barbadoes*, Snowberry-bush.

2. PERICLYMENUM *arborescens, ramulis inflexis, flore luteo*. *Plum. Cat.* Tree-like Trumpet Honey-suckle, with a yellow Flower.

3. PERICLYMENUM *aliud arborescens, ramulis inflexis, flore corallino*. *Plum. Cat.* Tree-like Trumpet Honey-suckle, with a coralline Flower.

The first of these Plants is pretty common in *Barbadoes* and *Jamaica*, where the Inhabitants give it the Name of Snowberry-bush, from the extreme Whiteness of the Fruit. The second and third Sorts were discovered by Father *Plumier* in some of the *French Settlements* in *America*; and since by the late Dr. *Houssoun* at *La Vera Cruz*.

These are all of them very tender Plants, and must constantly remain in the Bark-stove, otherwise they will not thrive in this Country. They may be propagated by Seeds, which

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should be brought over either in Sand or Earth, otherwise they seldom succeed; when they arrive, the Tubs of Earth, in which the Seeds were sown, should be plunged into a Hot-bed of Tanners Bark, observing frequently to water them; and when the Plants are come up, they should be carefully transplanted into separate small Pots filled with rich fresh Earth, and plunged into the Hot-bed again; where they may remain till about *Michaelmas*, when they should be plunged into the Bark-bed in the Stove, and treated as other tender Exotic Plants from the same Countries; and in two or three Years the Plants will flower, when they will make an agreeable Variety.

PERIPLOCA, *Virginian Silk*, or Climbing Dogs-bane.

To this *Article* must be added;

1. PERIPLOCA *foliis oblongis angustioribus*. *Inst. R. H.* Longer and narrower-leaved *Virginian Silk*, or Climbing Dogs-bane.

2. PERIPLOCA *Montpeliaca, foliis acutioribus*. *Inst. R. H.* Climbing Dogs-bane of *Montpelier*, with sharp-pointed Leaves.

3. PERIPLOCA *Americana, fructu molliter echinato*. *Inst. R. H.* American Climbing Dogs-bane, with a prickly Fruit.

4. PERIPLOCA *Americana latifolia, siliqua dura oblonga tumida & glabra*. *Inst. R. H.* Broad-leaved American Climbing Dogs-bane, with a long hard smooth swelling Pod.

5. PERIPLOCA *Americana scandens, salicis angustissimo folio, flore albo*. *Plum.* Climbing American Dogs-bane, with a narrow willow Leaf, and a white Flower.

6. PERIPLOCA *Americana repens umbellata, foliis citri, flore coccineo*. *Plum.* Creeping American Dogs-bane, with a citron Leaf, and scarlet Flowers, growing in an Umbel.

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ment rises the Pointal, which after-ward becomes a plain bicapsular and bivalve Pod, indented on each Side like a Saw, and filled with plain kidney-shaped Seeds.

We know but one Species of this Plant; viz.

PELECINUS vulgaris. Inst. R. H. Common Pelecinus.

This Plant is preserved in Botanic Gardens, for the sake of Variety: it is an annual Plant, and the Seeds should be sown early in April, on a Bed of light fresh Earth, in Drills about eighteen Inches asunder; and when the Plants are come up, they should be carefully cleared from Weeds; and where they are too close, they should be thinned, leaving them six or eight Inches Distance in the Rows, and observe always to keep them clear from Weeds, which is all the Culture they require. These Plants spread on the Ground, and from the Wings of the upper Leaves the Flowers are produced on slender Foot-stalks, which are small, and of a dirty red Colour; these are succeeded by Pods, which are flat, and indented on both Sides, resembling the Saw of the Saw-fish.

PERESKIA, Gooseberry, vulgò.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed orbicularly; whose Cup after-ward becomes a soft fleshy globular Fruit, beset with Leaves; in the middle of the Fruit, are many flat roundish Seeds, included in a Mucilage.

We know but one Species of this Plant; viz.

PERESKIA aculeata, flore albo, fructu flavescente. Plum. Nov. Gen. Prickly Pereskia, with a white Flower, and a yellowish Fruit.

This Plant grows in some Parts of the Spanish West-Indies, from

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whence it was brought to the English Settlements in America, where it is called a Gooseberry, and by the Dutch it is called Blad-apple. This Plant hath many slender Branches, which will not support themselves, but must be supported by Stakes, otherwise they will trail on whatever Plants grow near them. These Branches, as also the Stem of the Plant, are beset with long whitish Spines, which are produced in Tufts. The Leaves are roundish, very thick and succulent; and the Fruit is about the Size of a Walnut, having Tufts of small Leaves on it, and a whitish mucilaginous Pulp.

It may be propagated by planting of the Cuttings during any of the Summer Months: these Cuttings should be planted in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun in the Heat of the Day, as also to refresh them every third or fourth Day with Water. In about two Months the Cuttings will have made good Roots, when they may be carefully taken out of the Pots, and each planted in a separate Pot filled with fresh Earth, and then plunged into the Hot-bed again, where they may remain during the Summer Season; but at Michaelmas, when the Nights begin to be cold, they should be removed into the Stove, and plunged into the Bark-bed. During the Winter Season, the Plants must be kept warm, and should be watered twice a Week; but in cold Weather it should not be given to them in large Quantities. In Summer they must have a large Share of Air, and must be more plentifully watered: but they should constantly remain in the Stove; for though they will bear the open Air in Summer, in a warm Situation, yet they will

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will make no Progress, if they are placed abroad; nor do they thrive near so well in the Dry-stove, as when they are plunged in the Tan: so that the best way is to set them next a Trellace, at the Back of the Tan-bed, to which their Branches may be fastened, to prevent their trailing on other Plants. This Plant has not as yet produced either Flowers or Fruit in *England*; but as there are several Plants pretty well grown, in the Gardens of the Curious, we may expect some of them will flower in a short time.

PERICLYMENUM, Trumpet Honey-suckle.

To this *Article* must be added;

1. PERICLYMENUM *racemosum*, *flore flavescens, fructu niveso*. Plum. Tab. Hort. Elth. Branching Trumpet Honey-suckle, with a yellowish Flower, and a snowy Fruit, commonly called in *Barbadoes*, Snowberry-bush.

2. PERICLYMENUM *arborescens*, *ramulis inflexis, flore lutea*. Plum. Cat. Tree-like Trumpet Honey-suckle, with a yellow Flower.

3. PERICLYMENUM *aliud arborescens, ramulis inflexis, flore corallino*. Plum. Cat. Tree-like Trumpet Honey-suckle, with a coralline Flower.

The first of these Plants is pretty common in *Barbadoes* and *Jamaica*, where the Inhabitants give it the Name of Snowberry-bush, from the extreme Whiteness of the Fruit. The second and third Sorts were discovered by Father *Plumier* in some of the French Settlements in *America*; and since by the late Dr. *Houssoun* at *La Vera Cruz*.

These are all of them very tender Plants, and must constantly remain in the Bark-stove, otherwise they will not thrive in this Country. They may be propagated by Seeds, which

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should be brought over either in Sand or Earth, otherwise they seldom succeed; when they arrive, the Tubs of Earth, in which the Seeds were sown, should be plunged into a Hot-bed of Tanners Bark, observing frequently to water them; and when the Plants are come up, they should be carefully transplanted into separate small Pots filled with rich fresh Earth, and plunged into the Hot-bed again; where they may remain till about *Michaelmas*, when they should be plunged into the Bark-bed in the Stove, and treated as other tender Exotic Plants from the same Countries; and in two or three Years the Plants will flower, when they will make an agreeable Variety.

PERIPLOCA, *Virginian Silk*, or Climbing Dogs-bane.

To this *Article* must be added;

1. PERIPLOCA *foliis oblongis angustioribus*. Inst. R. H. Longer and narrower-leaved *Virginian Silk*, or Climbing Dogs-bane.

2. PERIPLOCA *Montepeliaca, foliis acutioribus*. Inst. R. H. Climbing Dogs-bane of *Montpelier*, with sharp-pointed Leaves.

3. PERIPLOCA *Americana, fructu molliter echinato*. Inst. R. H. *American Climbing Dogs-bane*, with a prickly Fruit.

4. PERIPLOCA *Americana latifolia, siliqua dura oblonga tumida & glabra*. Inst. R. H. Broad-leaved *American Climbing Dogs-bane*, with a long hard smooth swelling Pod.

5. PERIPLOCA *Americana scandens, foliis angustissimo folio, flore albo*. Plum. Climbing *American Dogs-bane*, with a narrow willow Leaf, and a white Flower.

6. PERIPLOCA *Americana repens umbellata, foliis citri, flore coccineo*. Plum. Creeping *American Dogs-bane*, with a citron Leaf, and scarlet Flowers, growing in an Umbel.

7. *PERIPLOCA Americana scandens, folio citri, fructu maximo. Plum.* Climbing American Dogs-bane, with a citron Leaf, and a large Fruit.

8. *PERIPLOCA Americana scandens, folio convolvuli, fructu alato. Plum.* American Climbing Dogs-bane, with a convolvulus Leaf, and a winged Fruit.

The first and second Sorts are hardy Plants, which will live in the open Air in this Country. These may be propagated by laying down of their Branches (for they very rarely produce good Seeds in *England*); and may be treated in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the Sorts there enumerated.

The other seven Sorts are tender, being Natives of the warm Parts of *America*. The Seeds of all these Sorts were sent to *England* by the late Dr. *Houfoun*, who collected them in *Jamaica*, at *Campechy*, and *Carthagena*; where they grow in great Plenty, and twist themselves round whatever Trees grow near them, and some of them rise to the Height of forty or fifty Feet or more. Some of these Sorts produce very large warted Pods, which are full of oblong flat Seeds, to which is fastened a very long soft white Down, which helps to convey the Seeds to a great Distance when ripe. This Down, as also that of the *Apocynum*, hath of late Years been used to stuff Pillows, Mattraffes and Quilts, for which Purposes there is nothing so proper; for it is so exceedingly light, that a Quilt of great Thickness is hardly to be felt, when spread over a Bed; which is of great Advantage to those Persons who are troubled with the Gout, and cannot bear any Weight on the Part affected. It hath also a very great Elasticity, so that it is not apt

to stick together. This Down is called in *French*, *de la Wadde*, and is greatly in Use amongst the Quality in *France*.

All these Plants may be propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are fit to transplant, they should be each planted into a separate Pot filled with fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun every Day, until they have taken new Root; after which time, they should have a large Share of Air in warm Weather, and must have Plenty of Water. In about six Weeks or two Months after planting, the Plants will get up to reach the Glasses of the Hot-bed; when they should be shifted into larger Pots, and plunged into the Bark-bed in the Stove; where they must be supported by an Espalier, otherwise they will twist themselves round whatever Plants grow near them.

These Plants will bear the open Air in Summer, but they never make any Progress, when they are exposed, and rarely flower; therefore in order to have these Plants in Beauty, they should constantly remain in the Stove, and must have a large Share of free Air in mild Weather. When they are thus managed, they will rise to the Height of thirty Feet or more, and will produce Flowers every Summer.

PERSEA, The Avocado or Avogato Pear.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are ranged in a Circle; from whose Middlerises the Pointal, which afterwards becomes a soft fleshy pear-shaped Fruit, in which is a hard Stone or Seed, having two Lobes, which

which is included in a Membrane or Pericardium.

We know but one Species of this Plant; viz.

PERSEA. *Clus. Hist.* The Avocado or Avogato Pear.

This Tree grows in great Plenty in the *Spanish West-Indies*, as also in the Island of *Jamaica*, and hath been transplanted into most of the *English Settlements in America* on account of its Fruit, which is not only esteemed by the Inhabitants as a Fruit to be eaten by way of Dessert, but is very necessary for the Support of the Life. The Fruit is of itself very insipid, for which Reason they generally eat it with the Juice of Lemons and Sugar to give it a Piquancy. It is very nourishing, and is reckoned a great Incentive to Venery. Some People eat this Fruit with Vinegar and Pepper.

This Tree in the warm Countries, where it is planted, grows to the Height of thirty Feet or more, and has a Trunk as large as our common Apple-trees; the Bark is smooth, and of an Ash-colour. The Branches are beset with pretty large oblong smooth Leaves, which are of a deep green Colour, and continue on the Tree throughout the Year. The Flowers and Fruit are, for the most part, produced toward the Extremity of the Branches.

In *Europe* this Plant is preserved as a Curiosity, by those Persons who are skilful in collecting Exotic Plants: and though there is little Hope of its producing Fruit, yet for the Beauty of its shining green Leaves, which continue through the Winter, it deserves a Place in every curious Collection of Plants.

It is propagated by Seeds, which should be obtained as fresh as possible from the Countries of its Growth; and if they are brought over in Sand,

they will be more likely to grow, than such as are brought over dry. These Nuts or Seeds should be planted in Pots, filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark, which should be kept pretty warm, by covering of the Glasses of the Bed every Night with Mats or Straw, especially when the Nights are cold. The Pots should also be frequently watered, when the Earth appears dry, which will greatly facilitate the Vegetation of the Seed, provided the Water is not given in large Quantities, which would rot them. In about a Month or five Weeks the Plants will come up, when they must be treated very tenderly; for the Bed must be kept in a due Temperature for Heat; and when the Days prove warm, the fresh Air should be admitted to the Plants, by raising of the Glasses a little. The Plants must also be frequently watered; and when they have grown about four Inches high, they should be carefully transplanted; and where there are several Plants in one Pot, they must be parted, being careful to preserve a Ball of Earth to the Root of each; and afterward planted into separate small Pots filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark; observing to shade them until they have taken new Root; after which time, they should have fresh Air admitted to them, in proportion to the Warmth of the Season, and they must be duly watered. Towards *Michaelmas* the Plants must be removed into the Stove, and plunged into the Bark-bed, where, during the Winter Season, they should be kept very warm, and must be gently watered twice a Week. In the Spring the Plants should be shifted into Pots a Size larger than the former, and the Bark-bed should be then renewed

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newed with fresh Tan, which will set the Plants in a growing State early, whereby they will make a fine Progress the following Summer. The Plants must be constantly kept in the Stove, for they are too tender to bear the open Air in this Country at any Season.

PETIVERIA, *Guinea Henweed*, *vulgò*.

The Characters are ;

It hath a Flower consisting of four Leaves, which are placed almost in the Form of a Cross, from whose Cup rises the Pointal, which afterward becomes the Fruit, which is bordered and cut on the Top, resembling an inverted Shield containing oblong Seeds.

We know but one Species of this Plant, *viz.*

PETIVERIA *solani foliis, loculis spinosis. Plum. Nov. Gen.* Petiveria with Nightshade-leaves, and prickly Seed-vessels, commonly called *Guinea Henweed*.

This Name was given to this Plant, by Father Plumier, who discovered it in *America*; in Honour to Mr. *James Petiver*, an Apothecary, who was a curious Botanist.

It is a very common Plant in *Jamaica*, *Barbadoes*, and most of the other Islands in the *West-Indies*, where it grows in shady Woods, and all the *Savannas*, in such Plenty, as to become a very troublesome Weed; and as this Plant will endure a great deal of Drought, it remains green, when other Plants are burnt up, which occasions the Cattle to brouze on it; and having a most unfavoury strong Scent, somewhat like wild Garlick, it gives the Cows Milk the same Flavour; and the Cattle which are killed soon after feeding on this Plant, have a most intolerable Scent, so that their Flesh is good for little.

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In *Europe* this Plant is preserved in the Gardens of those Persons who are curious in Botany, but there is little Beauty in it; and having so strong and rank a Scent upon being handled, is less valuable. It is propagated by Seeds, which must be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate Pot, and plunged into a moderate Hot-bed to bring them forward. When the Plants have obtained a good Share of Strength, they should be inured to bear the open Air by degrees; into which they may be removed toward the latter End of *June*, placing them in a warm Situation, where they may remain till Autumn, when they should be removed into the Stove, and in Winter must have a moderate Degree of Warmth, otherwise they will not live in this Country.

These Plants will grow woody, and shoot out many Side-branches, but seldom rise above two Feet high. They will produce Flowers and Seeds every Summer, and will continue several Years, remaining constantly green throughout the Year.

PHILLYREA, Mock Privet.

To this Article must be added ;

1. PHILLYREA *longiore folio, profunde crenato. H. R. Par.* Phillyrea with a longer Leaf, which is deeply crenated.

2. PHILLYREA *folio buxi. H. R. Par.* Box-leaved Phillyrea.

3. PHILLYREA *Hispanica, lauri folio serrato & aculeato. Inst. R. H.* Spanish Phillyrea, with a prickly and sawed Bay-leaf.

4. PHILLYREA *Hispanica, nerii folio. Inst. R. H.* Spanish Phillyrea, with an Oleander-leaf.

5. PHILLYREA *Capensis, folio celastri. Hort. Elth.* Phillyrea of the

Cape

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Cape of Good Hope, with a Staff-tree Leaf, commonly called by the *Dutch*, Lippelhout.

6. *PHILLYREA Americana humilis*, radice crassâ luteâ, foliis acuminatis. *Plum. Cat.* Dwarf American *Phillyrea*, with a thick yellow Root, and pointed Leaves.

7. *PHILLYREA Americana humilis*, radice crassâ roseâ, foliis rotundioribus. *Plum. Cat.* Dwarf American *Phillyrea*, with a thick rose-coloured Root, and rounder Leaves.

The four Sorts first-mentioned are hardy Shrubs, which will thrive in the open Air in *England*. These may be propagated by laying down of their Branches, after the manner exhibited in the former Volumes of the *Gardeners Dictionary*, for the common Sort, and may afterward be managed in the same way.

The fifth Sort is very common in several Gardens in *Holland*, but is at present pretty rare in *England*. This Sort will not live abroad through the Winter in this Climate, but is always preserved in Pots or Tubs, and removed into the Green-house in Winter; where if it is treated after the manner directed for the *Alaternoides*, in the former Volumes of the *Gardeners Dictionary*, it will thrive exceedingly well. This Sort is also propagated by laying down the tender Branches in the Spring of the Year, which must be duly watered in dry Weather; and by the following Spring they will have taken Root; when they should be separated from the old Plant, and planted in Pots filled with fresh Earth, and placed in the Shade until they have taken new Root; after which time, they may be exposed during the Summer Season, with other pretty hardy Exotic Plants, in a sheltered Situation, where they may remain till Autumn, when they must be removed into the

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Green-house. These Plants are ever-green, so that they make a pretty Variety in the Green-house, during the Winter Season.

The sixth Sort grows plentifully in several Parts of the *Spanish West-Indies*: the Seeds of this Kind were sent to *England* by Mr. *Robert Millar*, who gathered them near *Carthagera* in *America*. The seventh Sort was discovered by Father *Plumier* in *America*, and since by Mr. *Millar* in the Island of *Tabago*, from whence he sent some Seeds, but they did not succeed in *England*.

These two Sorts are tender Plants, which must be kept in a warm Stove in Winter, otherwise they will not live in this Country. They may be propagated by Seeds, which should be obtained as fresh as possible from the Countries of their Growth, and must be sown in Pots of fresh light Earth, and plunged into a Hot-bed of Tanners Bark; where they should remain until the Plants come up, which is often a Year from the time of sowing; wherefore whenever the Seeds remain so long in the Ground, the Pots must be frequently watered in Summer, and in Winter the Glasses of the Hot-bed should be covered with Mats, when the Weather is cold, to prevent the Frost from entering of the Bed, which would destroy the Seeds.

When the Plants are come up, they should be each transplanted into a small Pot, filled with fresh Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun in the Heat of the Day, until they have taken new Root; after which time, they must have free Air admitted to them every Day, in proportion to the Warmth of the Season, and should be constantly watered three or four times a Week in warm Weather. In this Bed the
Plants

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Plants may remain till Autumn, when they should be removed into the Stove, and plunged into the Bark-bed, where, during the Winter Season, they should be kept pretty warm, and must be frequently watered. These Plants may remain in the Bark-stove for two Years or less, according as they acquire Strength; for when they are pretty strong, they may be treated less tenderly, exposing them in the middle of the Summer to the open Air, in a sheltered Situation; and in Winter they may be placed in a dry Stove, where they should have a moderate Degree of Warmth, in which they will thrive very well. These Plants retain their Verdure through the Year, for which they are chiefly esteemed.

PHLOMIS, Jerusalem Sage.

To this Article must be added;

1. *PHLOMIS fruticosa, flore purpureo, foliis rotundioribus. Inst. R. H.* Shrubby Jerusalem Sage, with a purple Flower, and rounder Leaves.

2. *PHLOMIS fruticosa Lusitanica, flore purpurascens, foliis acutioribus. Inst. R. H.* Shrubby Jerusalem Sage of Portugal, with a purplish Flower, and sharp-pointed Leaves.

3. *PHLOMIS Hispanica fruticosa candidissima, flore ferrugineo. Inst. R. H.* The whitish Spanish shrub Jerusalem Sage, with an iron-coloured Flower.

4. *PHLOMIS orientalis lutea angustifolia, cymis fulvescentibus. D. Sherard. Act. Phil. N. 376.* Yellow Eastern Jerusalem Sage, with a narrow Leaf, and yellow Tops.

These four Plants grow to the Height of five or six Feet, and become shrubby: they are all of them pretty hardy, and will bear the Cold of our ordinary Winters in the open Air, provided they are planted on a dry Soil, and in a warm Situation: but as they are sometimes destroyed

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by severe Frosts, it is proper to keep a Plant of each Sort in Pots, which may be removed into Shelter in the Winter, in order to preserve the Kinds. These may be placed with Bays, and other hardy Plants, which only require to be defended from very hard Frosts, but must have as much free Air as possible in mild Weather; and should be treated as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the Sorts there enumerated. These may be propagated by Cuttings, as the common Sort.

PHYTOLACCA, American branching Nightshade.

To this Article must be added;

PHYTOLACCA Mexicana, baccis sessilibus. Hort. Elth. Branching Nightshade of Mexico, with flatter Berries growing close to the Stalk.

This Plant grows in divers Parts of America: the late Dr. Housser observed it in great Plenty about *La Vera Cruz*, where the Sailors used to gather the Leaves of the Plant, and boil it instead of Spinach, which they eat without any ill Effects, tho' by most People these Plants were thought to have a poisonous Quality.

It may be propagated by Seeds, which should be sown in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be transplanted on another Hot-bed, about four Inches asunder, where they may grow till the Plants are pretty strong; when they should be carefully transplanted into Pots, and plunged into a moderate Hot-bed, observing to shade them in the middle of the Day, until they have taken new Root; after which time, they should have a large Share of fresh Air in warm Weather, and must be plentifully watered: with this Management the Plants will flower in

July, and their Seeds will ripen in September. The Plants will continue two or three Years, provided they are placed in a Stove, and kept in a moderate degree of Warmth, otherwise they will perish in Autumn. The Berries of this Sort, when bruised, have a fine purple Juice, with which the Inhabitants make a fine Colour, but it is very apt to fade. The Juice of these Berries mixt with Water, in such Proportion as to make a strong Tincture, will tinge some white Flowers, so as to make them beautifully striped; but especially the tuberose, whose Flowers, when fully blown, should be cut off, and the Stem set into a Phial of this Tincture, which in one Night will be drawn up into the Flower, and appear in beautiful purple Stripes by the next Day.

PIMPINELLA, Burnet.

To this Article must be added;

1. PIMPINELLA *major Hispanica, spicâ dilatè rubente.* H. R. Par. Greater Spanish Burnet, with a pale red Spike.

2. PIMPINELLA *major Hispanica altera, conglomerato flore.* H. R. Par. Another large Spanish Burnet, with a conglomerated Flower.

3. PIMPINELLA *Canadensis, spicâ longâ rubente.* H. R. Par. Canada Burnet, with a long red Spike.

4. PIMPINELLA *agrimonoides odorata.* H. R. Par. Sweet-scented Burnet, with the Appearance of Agrimony.

5. PIMPINELLA *sanguisorba minor hirsuta.* C. B. P. Lesser rough Burnet.

6. PIMPINELLA *sanguisorba inodora.* C. B. P. Unflavory Burnet.

7. PIMPINELLA *sanguisorba minor, semine majore & crassiore.* Bot. Monsp. Smaller Burnet, with a larger and thicker Seed.

8. PIMPINELLA *spinosa, seu semper-virens.* Mor. Umb. Prickly ever-green Burnet.

The first, second, third, fifth, sixth and seventh Sorts, are hardy Plants, which continue several Years, and will live in the open Air. These may be propagated after the same manner as the common Sort, either by parting of the Roots in Autumn, or by Seeds, as hath been directed in the former Volumes of the *Gardeners Dictionary*, which I shall not repeat.

The fourth Sort is a biennial Plant, which is only cultivated by Seeds. The Seeds of this Sort should be sown in March, on a Bed of light fresh Earth, in an open Situation; and when the Plants are come up, they should be carefully cleared from Weeds, and thinned where they are too close; and as the Plants increase in Size, they should be reduced to leave them about a Foot apart; and many times the Plants will flower the same Year they were sown; but they always flower the second Year, and produce ripe Seeds, but seldom continue long after. The Leaves of this Plant, when rubbed, emit a grateful Odour.

The eighth Sort is an abiding Plant, which rises to the Height of two Feet or more, and becomes shrubby. The slender Branches of this Plant are beset with Thorns, at the Joints where the Leaves are produced; the Flowers are very small, and of an herbaceous Colour, which are seldom succeeded by Seeds in this Country.

This is propagated by Cuttings, which should be planted in the Summer Months, on a Bed of fresh light Earth, and should be shaded either with Mats or oiled Paper, until they have taken Root, which will be in about six Weeks or two Months, if they are carefully watered. When

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the Cuttings are rooted, they should be carefully taken up, and planted into separate Pots, filled with light fresh Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be exposed in a sheltered Situation, till the Middle or latter End of *October*, when they should be placed under a Frame, to defend them from the hard Frost in Winter; but they must have as much free Air as possible in mild Weather; and in the Spring they should be placed abroad with Myrtles, and other hardy Plants, observing to water them duly in dry Weather. With this Management the Plants will thrive very well, and may be continued several Years.

PINUS, The Pine-tree.

To this *Article* must be added;

1. PINUS *sylvestris montana tertia*. C. B. P. The third wild mountain Pine, of *Caspar Baubin*.

2. PINUS *sylvestris montana altera*. C. B. P. Another wild mountain Pine.

3. PINUS *sylvestris maritima, conis firmiter ramis adhaerentibus*. J. B. Wild maritime Pine, whose Cones adhere firmly to the Branches.

4. PINUS *maritima altera Matthioli*. C. B. P. Another maritime Pine of *Matthiolus*.

5. PINUS *maritima minor*. C. B. P. Lesser maritime Pine.

6. PINUS *humilis, iulis virescentibus aut pallescentibus*. Inst. R. H. Dwarf Pine, with a green or pale Katkin.

7. PINUS *humilis, iulo purpurascens*. Inst. R. H. Dwarf Pine, with a purplish Katkin.

8. PINUS *conis erectis*. Inst. R. H. Pine whose Cones grow erect.

9. PINUS *orientalis, foliis durioribus amaris, fructu parvo peracuto*. Town. Cor. Eastern Pine, with harder bitter Leaves, and a small sharp-pointed Cone.

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10. PINUS *Hierosolymitana, praelongis & tenuissimis viridibus setis*. Pluk. Almag. Eastern Pine, with long narrow green Leaves.

11. PINUS *Virginiana, praelongis foliis tenuioribus, cono echinato*. Pluk. Almag. Virginian Pine, with longer narrower Leaves, and a rough Cone.

12. PINUS *Virginiana tripilis f. ternis plerumque ex uno folliculo setis, strobilis majoribus*. Pluk. Almag. Virginian Pine, having for the most part three Leaves, coming out of one Sheath, commonly called the Frankincense-tree.

13. PINUS *Virginiana, binis brevioribus & crassioribus setis, minori cono, singulis squamarum capitibus aculeo donatis*. Pluk. Alm. Virginian Pine, with shorter thicker Leaves, and smaller Cones, with a Prickle on the Top of each Scale, commonly called the *Jersey Pine*.

14. PINUS *Americana palustris patula, longissimis & viridibus setis*. Marsh spreading American Pine, with the longest green Leaves.

The eight first-mentioned Sorts grow wild in *Austria*, *Spain*, *Portugal*, and some other Parts of *Europe*. These are all of them very hardy, and may be propagated by Seeds, in the same manner as hath been directed for the Firs, under the *Article Abies*, in the former Volumes of the *Gardeners Dictionary*.

The tenth Sort grows upon the Hills in the Neighbourhood of *Aleppo*, and in several other Places in the East. The Cones of this Kind are small, and the Seeds are destitute of Wings. This Sort is very hardy; for I have sown the Seeds in an open Bed of Earth, where the Plants have come up, and have made great Progress, without any further Care but keeping them clear from Weeds. This Sort is very quick of Growth, and endures the Cold extremely well.

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The ninth Sort was discovered by Doctor *Tournefort* in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*. This bears the Cold extremely well, and may be propagated by Seeds, as the common Sorts.

The eleventh, twelfth, thirteenth and fourteenth Sorts, are Natives of *America*, from whence their Cones have been brought into *Europe*, and many of the Plants have been raised, which are in the Gardens of several curious Gentlemen. These Plants are somewhat tender, when they first arise from Seeds; therefore should be particularly taken care of, the first Summer, otherwise they will drop away in a short time. The Seeds of these Plants should be sown in Pots or Tubs, filled with very light Earth, and they should have some light sifted Earth spread over them, about a quarter of an Inch thick. These Pots or Tubs must be shaded with Mats, or oiled Paper, to screen the Plants from the Sun; and these Coverings should be taken off every Night, unless the Weather is cold or stormy, when they should be continued on. For if the Plants are exposed to too much Wet, or strong Winds, it will destroy them while they are very young; though, when they have obtained Strength, they will resist the Severity of Weather extremely well. The Plants should be frequently refreshed with Water, but it must not be given to them in large Quantities, for the Reason before assigned. Toward the middle of the Summer, the Plants should be exposed to the Sun by degrees, taking the Covers off in the Afternoon, and letting them remain off longer in the Morning, so that by the middle of *July*, they may be quite exposed in the open Air, observing to water them duly in dry Weather. About

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the latter End of *October*, the Pots or Tubs must be placed under a common Frame, where they may be sheltered from excessive Rains or Frosts in the Winter; but they must have as much free Air as possible in mild Weather. The following Spring they should be transplanted, at which time there must be a Bed of light fresh Earth prepared, in a well-sheltered Situation; and in the Beginning of *April*, if the Season proves warm, they may be removed; but if it should prove cold, it is much better to defer it a little later in the Month. In taking of them up, great Care should be had, that the Fibres of their Roots are not broken, as also to plant them immediately; for if the Air dries their Root, they very rarely survive it. The Distance these Plants should be placed in the Bed, is about ten Inches, or a Foot; and as soon as they are planted, they should be gently watered three or four times over, so as to moisten the Earth thoroughly, but not to bear down the Plants. Then the Bed should be arched over with Hoops or Withies, and covered with Mats, or oiled Paper, to screen the Plants from the Sun, and drying Winds, until they have taken Root; after which time, they should be inured to bear the open Air by degrees; but then it will be proper to lay some Mulch on the Surface of the Ground, to prevent the Sun and Air from penetrating of the Ground, so as to dry the Fibres of the Plants; and during this Season, the Plants must be watered in dry Weather; for as they have but small rooting in the Ground while they are young, a little Drought will greatly injure, if not absolutely destroy them. The following Winter, if the Frost should prove extremely hard, it will be of great Service to the Plants, to screen them

them with Oak-branches, which retaining of their Leaves, will greatly protect the Plants from the Severity of the Frost, and they will not be so close as to exclude the Air wholly from them. But when the Frost is over, the Branches should be taken away by degrees, so as not to expose the Plants at once to the open Air; for an Indiscretion of this kind may destroy more Plants than the Frost would have done, if they had been exposed thereto.

In this Bed the Pines may remain two Years, when it will be proper to transplant them where they are to remain for good; for they will not endure transplanting when they are large. When this is performed, it should be in *April*, just before the Plants begin to shoot, and, if possible, in a rainy or cloudy Season. The Plants should be taken up with good Balls of Earth to their Roots, and the Holes should be opened, and thoroughly moistened before, so that the Plants may be immediately planted after they are taken up, that their Roots may not suffer from the Air. Then they should be watered to settle the Earth to their Roots, and the Surface of the Ground should be covered with Mulch, to prevent the Sun and Air from drying of their Roots; and if the Season should continue dry, it will be proper to water them twice a Week; but they should not have too much Water given them each time. When the Pines are well fixed in the Ground, they require no farther Care, but to keep them clear from large Weeds, which if permitted to grow, would overbear the Plants while they are young.

All these Sorts of *American* Pines should be planted on a Soil rather moist than dry, but especially the fourteenth Sort, which grows na-

turally on low moist boggy Places, and will not thrive on a dry Soil. This Tree hath a very remarkable Growth; for the Branches spread near the Ground to a great Distance from the Stem, and never rise in Height. The thirteenth Sort is the most common in the Northern Parts of *America*, where the Inhabitants call it the *Jersey-pine*.

As all the *European* Kinds of Pines are Inhabitants of Mountains and Hills, they delight in a hard rocky Soil, for which there are no Trees more proper; therefore whenever it happens in a large Plantation, that there is a low moist Place intervening between two Hills, that may be planted with these *American* Pines: so that the whole Plantation will appear, at a Distance, of the same Trees; and when nearer, the different Shades of their Leaves will diversify the Prospect; for which Reason all these Sorts of Trees should be propagated in the Nurseries.

PISONIA, Fingrigo, *vulgò*.

The Characters are;

It is Male and Female in different Plants; the Male Flowers consist of a great Number of Stamina, and have no Petals: the Female Flowers consist of one Leaf, which is bell-shaped, and divided at the Top into five Parts: from whose Cup arises the Pointal, which afterward becomes an oblong angular channelled Fruit, containing oblong Seeds.

The Species are;

1. PISONIA *aculeata mas.* *Hougl.*
The Male Fingrigo.

2. PISONIA *aculeata, fructu glutinoso & racemoso.* *Plum. Nov. Gen.*
Prickly Pisonia, with a glutinous and branching Fruit.

These Plants are seminal Variations, which arise from the Seeds of the same Plant; but as they were

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not distinguished by any of the Botanists, till the late Dr. *Houssoun* observed their Difference, I thought proper to mention the different Sexes as separate Plants.

The Name of this Plant was given by Father *Plumier* in Honour to Dr. *William Piso*, who published a Natural History of *Brazil*. The Name of *Fingrigo* is what the Inhabitants of *Jamaica* know it by.

These Plants are very common in the *Savanna's*, and other low Places in the Island of *Jamaica*, as also in several other Places in the *West-Indies*; where they are very troublesome to whoever passes thro' the Places of their Growth, in fastening themselves, by their strong crooked Thorns, to the Cloaths of the Persons; and their Seeds, being glutinous, also fasten themselves to whatever touches them; whereby the Wings of the Ground Doves, and other Birds, are often loaded with the Seeds, so as to prevent their Flying, by which means they become an easy Prey.

It rises about ten or twelve Feet high, with a pretty strong Trunk; but the Branches are long and slender, whereby being unable to support themselves, they generally twist about whatever Plants are near them.

In *Europe* this Plant is preserved in the Gardens of some curious Persons for Variety: it is propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark; and when the Plants come up, they should be transplanted into separate Pots, and plunged into the Hot-bed again; where they may remain till *Michaelmas*, when they should be removed into the Stove, and plunged into the Bark-bed, and treated in the same manner as hath been directed for several tender Plants

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of the same Country; observing in hot Weather to give them plenty of Water, but in Winter they should have it more sparingly. They are too tender to thrive in the open Air of this Country at any Season of the Year; but should be constantly kept in the Stove.

PITTONIA.

The Characters are;

It hath a globular bell-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim; from whose Cup arises the Pointal, which afterward becomes a soft spherical Berry full of Juice, inclosing two Seeds, which are for the most part oblong.

The Species are;

1. *PITTONIA arborescens chamaedrifolia major*. Plum. Nov. Gen. Greater tree-like Pittonia, with a Germander-leaf.

2. *PITTONIA arborescens chamaedrifolia minor*. Plum. Nov. Gen. Smaller tree-like Pittonia, with a Germander-leaf.

3. *PITTONIA humilis, anchusæ foliis*. Plum. Nov. Gen. Dwarf Pittonia, with alkanet Leaves.

4. *PITTONIA scandens, baccis niveis, nigris maculis notatis*. Plum. Nov. Gen. Climbing Pittonia, with white Berries spotted with black.

5. *PITTONIA frutescens, folio carnosso, hirsuto & obtuso*. Plum. Nov. Gen. Shrubby Pittonia, with a hairy fleshy obtuse Leaf.

6. *PITTONIA hirsutissima & ramossissima, baccis albis*. Plum. Nov. Gen. The most hairy and branched Pittonia, with white Berries.

7. *PITTONIA racemosa, nicotianæ foliis fætidissimis*. Plum. Nov. Gen. The most stinking branchy Pittonia, with Tobacco-leaves.

These Plants are all of them Natives of the warmest Parts of *America*, where the first Sort grows to

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the Height of twelve or fourteen Feet, and divides into many Branches, so as to form a small Tree. The second, fifth and seventh Sorts, grow to the Height of eight or nine Feet, and produce many Branches near their Roots, so as to form thick Bushes.

They may be all propagated by Seeds, which should be sown early in the Spring in Pots filled with fresh Earth, and plunged into a Hot-bed of Tanners Bark; and when the Plants are come up, they may be treated after the same manner as hath been directed for the Persea: with which Management these Plants will thrive very well, and in few Years will produce their Flowers. These are preserved by those Persons who are curious in collecting rare Plants, but there is no great Beauty in their Flowers; however, as they are ever-green, they make a Diversity amongst other Exotic Plants in the Stove in the Winter-season.

PLINIA.

The Characters are;

It hath a bell-shaped Flower consisting of one Leaf, which is divided into five Segments at the Brim; from whose Cup rises the Pointal, which after-ward becomes a globular, soft, chanelled Fruit, in which is included one Seed of the same Form.

We have but one Species of this Plant; which is,

PLINIA *fructu croceo odorato.*
Plum. Nov. Gen. Plinia with a sweet-scented saffron-coloured Fruit.

This Plant was discovered by Father Plumier in the West-Indies, who gave it this Name, in Honour to Pliny the famous Natural Historian.

It grows in several Places in the warmer Parts of America, from whence the Seeds have been sent to Europe. These Seeds must be sown in Pots filled with light rich Earth, and

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plunged into a Hot-bed of Tanners Bark, observing to moisten the Earth with Water whenever it appears dry, as also to preserve a moderate Temperature of Heat in the Bed, so that if the Nights should prove cold, the Glasses of the Hot-bed should be every Night covered with Mats; and in the middle of the Day the Glasses may be raised to admit fresh Air, when the Weather is warm. These Seeds will sometimes remain long in the Ground before the Plants appear; and whenever it so happens, the Pots must be constantly kept clear from Weeds, and duly watered. And when the Plants come up, they should be transplanted into Pots, and may be managed as is directed for the Pittonia.

PLOUGHING of Land.

There is not a greater Improvement of arable Land, than that of well ploughing it; by which Method the Soil is pulverised, and rendered fit to receive the Fibres of Plants. And the oftener this is repeated, the greater Improvement is made. But as this Part of Agriculture has been fully treated of by the several Writers on Husbandry, I shall not repeat what they have said, but subjoin a few Remarks to those already published.

In ploughing of Land, great Regard should be had to the Crop which is designed to be sown; for if the Plants have Tap-roots, which run deep into the Ground, then it should be ploughed deep; otherwise, when the Roots have reached so low as to meet with the unstirred Earth, they will stop, and divide into small forked Roots, and be good for little. It has been often asserted, that deep ploughing is very injurious to many Soils; but from repeated Observations it appears otherwise; for where

ever there is Depth enough of Soil to admit of deep ploughing, when it is practised rightly, it is a vast Improvement to the Land. Indeed, where the Land is very stubborn, and ploughed so deep as to turn up the strong Part on the Surface, and this is not well wrought to divide the Parts, it often proves a Disadvantage to the Crop ; but when this is practised, it should always be done the Beginning of Winter, so that it may be exposed to the Frost, which will be of great Use, by entering of the Clods, and causing them to crumble after the Thaw ; then in the Spring it should be again ploughed, and this repeated twice more at least the following Summer ; which will not only destroy the Weeds, but so divide the Particles of Earth, as to make it fall easily under the Harrow.

The Difference between Land which is dug by Hand, and that which is ploughed, consists in having the Parts more divided ; so that every Person who is curious in Working of his Land, will oblige his Labourers to take as thin Spits of Earth as possible, that there may remain no large Clods unbroken. And it is the same in ploughing ; for if the Land is ploughed three or four times carefully, it will divide the Clods equal to the Land which is dug, and will sufficiently repay the Husbandman. But this is not to be done with the common Plough ; for that will not divide the Parts : therefore the Plough with four Coulters should be used for this Purpose. As this Sort of Plough requires more Strength to draw it, it should not be used but in wet Weather ; for when the Ground is moist, this Plough may be more easily drawn, than when it is dry and hard ; and there is no Danger of

injuring the Land, by ploughing in wet Weather with this Plough, tho' there is much in the common Plough at such times ; because, when the Furrow is turned over whole, the Clods will cement with the Wet ; and where the Cattle tread on it, the Ground will be rendered as hard as before it was stirred.

It hath been a Practice in some Counties, where the Land is mellow, to plough the Top of the Furrow, and then with six or seven Labourers to dig after the Plough, and throw the Earth on the Top, which is almost equal to digging of the Land two Spits deep, and is performed at a much easier Expence : but this is never practised, except for some particular Crops, which root very deep in the Ground.

The Models or Draughts of all the Sorts of Ploughs in Use being already exhibited in the several Books of Husbandry extant, I shall not give any farther Account of them.

PLUMBAGO, Leadwort.

To this *Article* must be added ;

1. PLUMBAGO *flore albo. Inst. R. H.* Leadwort with a white Flower.
2. PLUMBAGO *orientalis, lapathi folio, flore minori albido. Tourn. Cor.* Eastern Leadwort, with a dock Leaf, and a smaller whitish Flower.
3. PLUMBAGO *Americana scandens aculeata, betæ folio minori. Plum. Cat.* Prickly Climbing American Leadwort, with a lesser Beet-leaf.

The first Sort here mentioned differs in nothing from the common Sort, which is mentioned in the former Volumes of the *Dictionary*, except in the Colour of the Flower, that having a purple, and this Sort a white Flower ; so that they may be indifferently used in Medicine.

The second Sort was discovered by Dr. *Tournefort* in the *Levant*. This is a hardy Plant, which will endure

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the Cold of our ordinary Winters extremely well in the open Air. Both these Sorts may be propagated and managed in the same manner as is directed for the ordinary Sort in the former Volumes of the *Dictionary*.

The third Sort was discovered by Father *Plumier*, in some of the *French* Settlements in *America*, and since was found by the late Dr. *Houssoun* at *La Vera Cruz*. This Sort may be propagated by Seed, which should be sown on a Hot-bed early in the Spring, and must be afterward treated in the same manner as is directed in the former Volumes of the *Gardeners Dictionary*, for the second Sort there mentioned. This Sort will abide several Years, if it is preserved in a Stove in the Winter, and will ripen Seed every Year.

PLUMERIA, The Jasmine-tree, *vulgò*.

The Characters are ;

It hath a funnel-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim, out of whose Cup arises the Pointal, which afterward becomes the Fruit or Pod, which for the most part grow double, and open lengthwise, discovering the Seeds, which are oblong, and have a Border round them : these are ranged over each other like Slates on a House, and are fastened to the Placenta.

The Species are ;

1. **PLUMERIA** *flore roseo odoratissimo*. *Inst. R. H.* Plumeria with a rose-coloured sweet-scented Flower, commonly called in the *West-Indies* Red Jasmine.

2. **PLUMERIA** *flore majore odorato & incarnato*. Plumeria with a larger sweet-scented and incarnate Flower, called in the *West-Indies* the Japan-tree.

3. **PLUMERIA** *flore niveo, foliis longis angustis & acuminatis*. *Inst.*

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R. H. Plumeria with a snowy Flower, and long narrow pointed Leaves.

4. **PLUMERIA** *flore niveo, foliis brevioribus & obtusis*. *Inst. R. H.* Plumeria with a snowy Flower, and shorter blunt Leaves.

5. **PLUMERIA** *foliis longissimis, minus succulentis, flore pallido*. *Houss.* Plumeria with very long and less succulent Leaves, and a pale Flower.

6. **PLUMERIA** *folio latiore obtuso, flore luteo minore*. Plumeria with a broad obtuse Leaf, and a smaller yellow Flower.

This Name was given to this beautiful Genus of Plants, by Dr. *Tournefort*, in Honour to Father *Plumier*, who was Botanist to the late King of *France*, and a long time in *America*, searching after new Plants, and who has published a Catalogue of the Plants he discovered, with the new Genus's he constituted ; and two Volumes in *Folio*, with Figures and Descriptions of many of the Plants.

These Plants grow wild in the *Spanish West-Indies*, from whence some of the most beautiful Kinds were brought into the *English* Settlements in *America*, and are cultivated in their Gardens for Ornament. The first Sort here mentioned, is the most common Kind, which is preserved in the Gardens of the Inhabitants of *Jamaica* and *Barbadoes*. The Flowers of this Kind nearly resemble those of the red Oleander, but are larger, and have an agreeable Odour. These are produced in small Bunches at the Extremity of the Shoots, and generally appear in *July* and *August*, in this Climate ; but in the *West-Indies*, they flower a great Part of the Year.

The second Sort I received from the Island of *St. Christophers*, by the Name

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Name of *Japan-tree*: this Sort is very rare in the *English* Settlements at present, having been but lately introduced from the *Spanish West-Indies*: it is in Leaf and Stem very like the first, but the Flowers of this are of a paler Colour, and are produced in much larger Bunches. It is very common to have upward of twenty of these Flowers open in one Bunch, and a Number to succeed these as they decay, so as that the Bunches have continued in Beauty upward of two Months; during which time they make a most beautiful Appearance in the Stove, and have a very agreeable Flavour.

The third Sort grows plentifully at *Campechy*, from whence the late Dr. *Houffoun* sent the Seeds. He also observed some Plants of this Kind at *Jamaica*. The sixth Sort is also pretty common in both those Places. These are not near so beautiful as the two former Sorts, their Flowers being smaller, and produced in lesser Bunches, and are moreover of shorter Duration. But for the Beauty of their Stems and Leaves, and for the sake of Variety, they deserve Room in every curious Collection of Plants.

The fourth and fifth Sorts were discovered by Dr. *Houffoun*, growing in great Plenty near *Carthagena* in the *Spanish West-Indies*, from whence he sent their Seeds to *England*. The fourth Sort produces small white Flowers, resembling those of the third, and is less valuable than the two first. But the fifth Sort produces as large Flowers as the first; which are of a pale-red Colour, and smell very sweet. The Leaves of this Sort are sometimes ten Inches or a Foot in Length, and about three Inches over in their broadest Part. These are not near so thick, or full of Juice, as are those of the

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other Sorts, nor are they so deeply veined; but being of a bright shining green Colour, they make an agreeable Variety amongst other tender Exotic Plants in the Stove.

All these Plants may be propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into a Hot-bed of Tanners Bark; and when the Plants are come up about two Inches high, they should be transplanted into separate small Pots, filled with light sandy Earth, and plunged into the Hot-bed again, observing to shade them from the Heat of the Sun in the middle of the Day, until they have taken Root: but they must not have much Water; for as all the Sorts are very succulent, being full of a milky Juice, somewhat like the *Euphorbiums*, Moisture will cause them to rot. In hot Weather the Plants should have a pretty large Share of fresh Air admitted to them, by raising of the Glasses of the Hot-bed every Day, in proportion to the Warmth of the Season. Toward *Michaelmas*, when the Nights begin to be cold, the Plants should be removed into the Stove, and plunged into the Bark-bed, where they must remain throughout the Winter. As these Plants all cast their Leaves in the middle of Winter, and continue destitute of them till about the Beginning of *May*, therefore, during that time, they should be watered very sparingly; because they are in more Danger of rotting, while they are in a less active State, by too much Moisture, than when they are furnished with Leaves, thro' which the Moisture is more freely perspired.

All these Sorts are too tender to thrive in the open Air of this Country in the Summer-season; therefore they should be constantly

preserved in the Stove, where in warm Weather they must have a large Share of free Air; but in cold Weather they must be kept very warm. While they are young, it will be proper to continue them in the Bark-bed; but when they have obtained Strength, they may be placed in the dry Stove, where they will thrive very well, provided they are kept in a moderate Temperature of Heat, and have not too much Water.

These Plants may also be propagated by Cuttings, which should be taken from the old Plants a Month before they are planted; during which time they should be laid on the Flues in the Stove, that the Part which joined to the old Plant, may be quite healed, otherwise they will rot. These Cuttings should be planted in small Pots filled with light sandy Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them in the Heat of the Day from the Sun, and refresh them every third or fourth Day with Water; but it must be given to them sparingly each time. If the Cuttings succeed, they will have taken Root in about two Months, when they should have a larger Share of Air, to harden them by degrees to bear the Sun and Air, and afterward may be treated as the old Plants.

The milky Juice of these Plants is very caustic, and reckoned very poisonous: in cutting off any of the Branches of the Plants, if the Knife be not immediately cleaned, the Juice will corrode it, and turn the Blade almost black in a very little time, so as not to be cleaned off again; and if dropped on Linen, will cause it to wash in Holes, equal to *Aqua fortis*.

POINCIANA, *Barbados Flower-fence*.

To this Article must be added,

1. POINCIANA *flor. rubente*. *Houff.* Flower-fence with a reddish Flower.

2. POINCIANA *(spinosa, vulg.)* TARA. *Feuil.* Prickly Flower-fence, commonly called *Tara*.

The first Sort was discovered by the late Dr. *Houffoun* at *Campêche*, where it grew in great Plenty. This doth not differ in any thing from the common Sort, which is mentioned in the former Volume of the *Gardeners Dictionary*, except in the Colour of the Flowers; that having a Flower variegated with Red and Yellow, and this hath Flowers of a plain red Colour.

The second Sort was discovered by *Pere Feuillée*, growing plentifully in the Valleys of *Lima*. The Flowers of this Kind are smaller than those of the other Sorts, and are of a greenish yellow Colour, so that they are not near so beautiful. The Seed-pods of this Sort are used by the Dyers in the *Spanish West-Indies*, for Dying of Black; and they are also used for making of Ink: the Infusion of these Pods with Galls, affords the most beautiful black Ink in the World.

These two Sorts may be propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants come up, they must be treated in the same manner as is directed for the common Sort, in the former Volumes of the *Gardeners Dictionary*; which I shall not repeat here.

POLIUM, Mountain-poley.

To this Article must be added;

1. POLIUM *montanum alterum, foliis angustioribus, capitulis longioribus*. C. B. P. Another Mountain-poley, with narrower Leaves, and longer Heads.

2. POLIUM *montanum repens*. C. B. P. Creeping Poley-mountain.

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3. *POLIUM maritimum supinum Venetum.* C. B. P. Creeping maritime Venetian Poley-mountain.

4. *POLIUM Hispanicum, chamaedrys folio, purpurascente flore.* Inst. R. H. Spanish Poley-mountain, with a Germander-leaf, and a purplish Flower.

5. *POLIUM Lusitanicum supinum minus incanum, caulibus purpurascens, flore albo.* Inst. R. H. Creeping less hoary Portugal Poley-mountain, with purplish Stalks, and a white Flower.

6. *POLIUM Hispanicum latifolium, capitula breviori, purpurascente flore.* Inst. R. H. Broad-leaved Spanish Poley-mountain, with a shorter Head, and purplish Flower.

7. *POLIUM Hispanicum maximum album.* Inst. R. H. The largest white Spanish Poley-mountain.

8. *POLIUM Hispanicum maximum luteum.* Inst. R. H. The greatest yellow Spanish Poley-mountain.

9. *POLIUM Hispanicum maritimum frutescens, roris-marini folio, flore rubro.* Inst. R. H. Shrubby maritime Spanish Poley-mountain, with a rosemary Leaf, and a red Flower.

10. *POLIUM Hispanicum supinum, flore flavescens.* Inst. R. H. Creeping Spanish Poley-mountain, with a yellowish Flower.

11. *POLIUM Hispanicum, linariae foliis brevioribus, flore albo.* Inst. R. H. Spanish Poley-mountain, with shorter Toadflax-leaves, and a white Flower.

12. *POLIUM montanum gnaphaloides incisum, flore rubro, & supinum.* Barr. Icon. Creeping Poley-mountain resembling Cudweed, with a red Flower.

13. *POLIUM Hispanicum luteum, majoranae folio.* Inst. R. H. Yellow Spanish Poley-mountain, with a marjoram Leaf.

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14. *POLIUM Hispanicum, serpylli folio, purpurascens flore.* Inst. R. H. Spanish Poley-mountain, with a mother-of-thyme Leaf, and a purplish Flower.

15. *POLIUM Hispanicum, thymi folio, purpurascens comâ.* Inst. R. H. Spanish Poley-mountain, with a Thyme-leaf, and a purplish Top.

16. *POLIUM Creticum maritimum humifusum.* Tourn. Cor. Trailing maritime Poley-mountain of Crete.

17. *POLIUM Smyrnaeum, scordii folio.* Tourn. Cor. Smyrna Poley-mountain, with a water-germander Leaf.

All these Sorts of Poley-mountain are pretty hardy Plants, and will endure the Cold of our ordinary Winters in the open Air, provided they are planted in a warm Situation, and on a dry stony Soil; for if they are planted in a rich moist Soil, they will grow very freely in Summer; but being replete with Juice, are apt to rot in Winter; so that when they are planted on a lean stony Soil, where they will be stunted and grow short, and have small Leaves, they will abide several Years. These Plants seldom produce good Seeds in this Country; therefore are propagated by Cuttings, which may be planted any time in the Summer, in a Bed of fresh Earth, observing to shade them until they have taken Root, as also to refresh them with Water in dry Weather. When they are rooted, they will want no farther Care, but to keep them clear from Weeds; and at Michaelmas they may be transplanted into the Places where they are designed to remain, that they may be well rooted before the Frost comes on.

These Plants are chiefly preserved in Botanic Gardens for Variety; but they may be rendered ornamental in other

other Gardens, where they will grow on stony gravelly Soils; and their hoary Leaves and Branches, with the different Colour of their Flowers, will make an agreeable Prospect, if they are properly disposed.

POLYGALA, Milkwort.

To this Article must be added;

1. POLYGALA *acutioribus foliis*, *Monspeliaca*. C. B. P. Montpelier Milkwort, with sharp-pointed Leaves.

2. POLYGALA *acutioribus foliis*, *Monspeliaca*, *floribus cæruleis*. H. R. *Monsp.* Montpelier Milkwort, with sharp-pointed Leaves, and blue Flowers.

3. POLYGALA *foliis lanceolatis brevibus*. Bocc. Mus. Milkwort with short spear-shaped Leaves.

4. POLYGALA *montana minima myrtifolia*. Inst. R. H. The least mountain Milkwort, with a myrtle Leaf.

5. POLYGALA *Cretica vulgari similis*, *flore albido longiore*. Tourn. Cor. Milkwort of Crete like the common Sort, with a longer whitish Flower.

6. POLYGALA *orientalis supina myrtifolia*, *flore cæruleo*. Tourn. Cor. Low Eastern Milkwort, with a myrtle Leaf, and a blue Flower.

7. POLYGALA *orientalis linifolia*, *flore magno albo*. Tourn. Cor. Eastern Milkwort, with a flax Leaf, and a large white Flower.

8. POLYGALA *orientalis linifolia*, *flore magno purpureo*. Tourn. Cor. Eastern Milkwort, with a flax Leaf, and a large purple Flower.

9. POLYGALA *Lusitanica frutescens*, *magno flore*, *foliis minimis*. Inst. R. H. Shrubby Portugal Milkwort, with a large Flower, and very small Leaves.

10. POLYGALA *Africana frutescens angustifolia major*. Oldenl. Greater shrubby African Milkwort, with a narrow Leaf.

11. POLYGALA *Africana*, *linifolio*, *magno flore*. Oldenl. African Milkwort, with a flax Leaf, and a large Flower.

12. POLYGALA *Virginiana*, *foliis oblongis*, *floribus in thyrso candidis*, *radice alexipharmicâ*. Milkwort of Virginia, with oblong Leaves, and white Flowers, growing in a loose Spike, whose Root is alexipharmic, commonly called, the Senegaw Rattle-snake-root.

13. POLYGALA *cærulea Americana*, *angustis & densioribus foliis*, *vulgò Clin-clin*. Feuillée. Blue American Milkwort, with narrow Leaves, commonly called by the Indians Clin-clin.

14. POLYGALA *rubra Virginiana*, *spicâ parvâ compactâ*. Banist. Red Virginian Milkwort, with a small compact Spike.

15. POLYGALA *spicata rubra major*, *foliis & caulibus cærulescentibus*. Banist. Greater red spiked Milkwort, with bluish Leaves and Stalks.

16. POLYGALA *f. Flos Ambarvalis Virginiana*, *floribus luteis in caput oblongum congestis*. Banist. Virginian Milkwort, with yellow Flowers collected in an oblong Head.

17. POLYGALA *quadrifolia f. cruciata*, *floribus ex viridi rubentibus*, *in globum compactis*. Banist. Four-leaved Milkwort, with reddish green Flowers, growing in a compact Globe.

18. POLYGALA *quadrifolia minor Virginiana*, *spicâ parvâ rubenti*. Banist. Smaller four-leaved Virginian Milkwort, with a small reddish Spike.

19. POLYGALA *Mariana*, *angustiore folio*, *flore purpureo*. Pluk. Mantif. Narrow-leaved Milkwort of Maryland, with a purple Flower.

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20. *POLYGALA Mariana quadrifolia minor, spicâ parvâ albicante.* Pluk. Mantif. Smaller four-leaved Milkwort of *Maryland*, with a small whitish Spike.

The four Sorts first-mentioned are low Plants, which grow in *Spain*, *Italy*, and the South of *France*; as are also the fifth, sixth, seventh and eighth Sorts, which were discovered by Dr. *Tournefort* in the *Levant*. These are hardy Plants, which will live in the open Air in this Country, and may be propagated by Seeds, in the same manner as the common Sort.

The ninth and tenth Sorts are shrubby Plants, which are preserved in some curious Gardens for Variety. These may be also propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be transplanted into separate Pots, filled with light fresh Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun until they have taken Root; after which time they should have a large Share of fresh Air in warm Weather, and must be frequently watered. About the middle of *May*, these Plants should be inured to bear the open Air by degrees; and in *June*, they may be placed abroad in a sheltered Situation, where they may remain during the Summer-season; and in Autumn they must be removed into the Green-house, and managed as hath been directed for the fifth Sort mentioned in the former Volumes of the *Gardeners Dictionary*. These Plants continue a long time in Flower, and are worthy of a Place in every curious Garden, for the sake of Variety.

The eleventh Sort is a Native of the Cape of *Good Hope*, and the

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thirteenth grows on the Mountains in the Kingdom of *Chily* in the *Spanish West-Indies*, where it is used by the *Indians*, to cure Pleurifies, and all Complaints of the Side. These two Sorts are of low Growth, seldom rising higher than the common Sort; but being too tender to live in the open Air in *England*, they should be planted in Pots, and preserved in the Green-house in Winter. These may be propagated by Seeds, as the two former Sorts.

The other Sorts are all of them Natives of *Virginia*, *Maryland*, *New England*, and several other Places in the North of *America*; therefore are hardy enough to live in the open Air in *England*, provided they are planted in a warm Situation, and on a light Soil. These are very pretty Plants, and require very little Trouble to cultivate them; for after they are come up from Seeds, the only Care they require, is to keep them clear from Weeds, and in very dry Weather to water them while they are young; for when they have obtained Strength, they will not be in much Danger of suffering by Drought; for the Roots run pretty deep into the Ground, where they will find Nourishment to support them.

The Root of the twelfth Sort hath been long used by the *Senegaw Indians* to cure the Bite of the Rattle-snake, which, if taken in time, is an infallible Remedy. And of late Years it hath been used by the Inhabitants of *Virginia* in many Disorders, which are occasioned by thick sily Blood; so that the Root of this Plant, when its Virtues are fully known, may become one of the most useful Medicines yet discovered. The thirteenth Sort, by the Account which *Pere Feuillée* gives of it, partakes of the same Qualities with this, tho' the *Indians* use it differently;
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for he says they make a Decoction of the Plant, which they drink to cure the Pain of the Side; whereas the *Senegaw Indians* use the Root of the twelfth Sort, which they powder, and generally carry about them, when they travel in the Woods, lest they should be bit by the Rattle-snake; and whenever this happens, they take a Quantity of the Powder inwardly, and apply some of it to the Part bitten, which is a sure Remedy.

POLYGONATUM, Solomon's-seal.

The *Species* omitted in the former Volumes are;

1. POLYGONATUM *latifolium maximum*. C. B. P. The greatest broad-leaved Solomon's-seal.

2. POLYGONATUM *latifolium, bellebori albi foliis*. C. B. P. Broad-leaved Solomon's-seal, with Leaves like the white Hellebore.

3. POLYGONATUM *latifolium, flore majore odoro*. C. B. P. Broad-leaved Solomon's-seal, with a large sweet Flower.

4. POLYGONATUM *orientale latifolium, flore parvo*. Tourn. Cor. Eastern-broad-leaved Solomon's-seal, with a small Flower.

5. POLYGONATUM *angustifolium non ramosum*. C. B. P. Narrow-leaved unbranched Solomon's-seal.

6. POLYGONATUM *angustifolium ramosum*. C. B. P. Narrow-leaved branching Solomon's-seal.

7. POLYGONATUM *Americanum scandens altissimum, foliis tamni*. Plum. The tallest climbing American Solomon's-seal.

The first and second Sorts grow very tall, provided they are planted in a pretty good Soil. In a moist Season it is common for these to be upward of three Feet high, whereas the ordinary Sort seldom rises above half that Height. The Leaves of

these Sorts are also very large, so that they make a handsome Appearance in the Borders of large Gardens.

The third Sort hath broader Leaves than the common Sort, but doth not grow much higher. The Flowers of this Sort, being larger, and having an agreeable Scent, render it worthy of a Place in large Gardens.

The fourth Sort was discovered by Dr. *Tournefort* in the *Levant*, but is not common in *Europe*: this hath a broader Leaf than the common Sort, and the Flower is much smaller. It is preserved in some curious Botanic Gardens, for the sake of Variety.

The fifth and sixth Sorts are very different from either of the former: these have four or five Leaves, produced at each Joint, which are much longer and narrower than those of the common Sort, so that they make a very different Appearance; therefore should be allowed a Place in large Gardens for the sake of Variety.

All these Sorts are as hardy as the common Solomon's-seal, and may be propagated by parting of their Roots, in the same manner as is directed in the former Volumes of the *Gardeners Dictionary*, for the common Sort.

The seventh Sort is a Native of the warmest Parts of *America*, where it grows in the Woods, and climbs on whatever Trees grow near it, by the Help of which it rises to a great Height. This produces its Flowers in long Bunches, somewhat like the black Briony. The Seeds of this Plant were sent from *Campechy*, by Mr. *Robert Millar* Surgeon. This Plant must be preserved in Stoves, otherwise it will not live thro' the Winter in this Country: it may be propagated by Seeds, which should

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be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be treated in the same manner as hath been directed for *Dioscorea*: with which Management this Plant will thrive, and produce Flowers in *England*.

POPULUS, The Poplar-tree.

To this Article must be added;

POPULUS nigra Caroliniana, folio maximo, gemmis balsamum odoratissimum fundentibus. *Catesb.* The Carolina black Poplar, with the largest Leaf, from whose Buds issues a very sweet Balsam.

This Sort of Poplar-tree grows by the Sides of Rivers, and in other moist Places, in *South Carolina*, where it rises to be a very large Tree. The young Branches of this Tree are commonly angular, sometimes having three, and at other times four Angles. The Leaves are much broader, and are not so pointed, as those of the common black Poplar. The Buds of the Leaves are very large, and in the Spring, just before they push, there issues out of them a very sweet Balsam.

Altho' this Tree is a Native of a much warmer Country than *England*, yet it is hardy enough to endure the Cold of our Winters in the open Air; and may be propagated by Cuttings, in the same manner as the common black Poplar: the best Time to plant these Cuttings, is in the Beginning of *March*. These Cuttings should be about a Foot or fourteen Inches long, and should be planted six or eight Inches in the Ground. If the Spring prove dry, they must be frequently watered until they have made Roots; after which time they will require no farther Care, but to keep them clear from Weeds. These Cuttings will be rooted enough to bear trans-

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planting in one Year; and the *March* following they should be removed, and planted either in a Nursery, where they may be trained up to Stems, or in the Places where they are designed to remain; which must be in a moist Soil, where they will grow to be large Trees; and being intermixed with other Trees of the same Growth, will make an agreeable Diversity.

PSEUDOACACIA, False Acacia.

To this Article must be added;

1. PSEUDOACACIA Americana, flore pyramidato coccineo. *Plum. Cat.* False Acacia of *America*, with scarlet Flowers, growing in a Pyramid.

2. PSEUDOACACIA Americana, siliquis alatis. *Plum. Cat.* False Acacia of *America*, with winged Pods.

3. PSEUDOACACIA Americana latifolia, floribus purpureis. *Plum. Cat.* False Acacia of *America*, with a broad Leaf, and purple Flowers.

4. PSEUDOACACIA Americana ingens, fructu coccineo, nigra macula notato. *Plum. Cat.* False Acacia of *America*, with a scarlet Fruit, marked with black Spots.

5. PSEUDOACACIA Americana, fraxini folio, floribus violaceis. *Plum. Cat.* False Acacia of *America*, with an Ash-leaf, and violet-coloured Flowers.

The first, third and fifth Sorts, grow plentifully about *Carthage* in *New-Spain*, as also at *Campechy*: in both these Places they were observed by the late Dr. *William Houstoun*, who sent Seeds of these Kinds to *England*.

The second Sort grows plentifully in all the low Lands of *Jamaica*, and is called by the Inhabitants *Dogwood*. The Bark of this Tree, bruised and thrown into standing Waters, where Fish are, will intoxicate them for a time,

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time, so that they turn up their Bellies, and float on the Surface of the Water ; by which Method the *Indians* and *Negroes* take great Quantities of Fish, which, when caught after this manner, are esteemed very wholesome.

The fourth Sort is also pretty common in most of the *English* Settlements in the *West-Indies*, and in the *Spanish West-Indies* it is very common. The Seeds of this Tree are of a beautiful scarlet Colour, having a large black Spot on the Eye. This was formerly brought into *England* by the Name of *Anacook*.

All these Sorts of false *Acacia* being very tender Plants, will not thrive in this Country, unless they are preserved in Stoves. They may be propagated by Seeds, which should be sown early in the Spring, in Pots filled with rich Earth, and plunged into a Hot-bed of Tanners Bark ; and when the Plants are come up, they should be each transplanted into a separate Pot, filled with rich Earth, and plunged again into the Hot-bed, being careful to shade them until they have taken new Root ; after which time they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season, and they must be frequently watered in warm Weather. With this Management the Plants will make good Progress, so that towards the End of *July*, they will have filled the Pots with their Roots ; when they should be shifted into other Pots somewhat larger, and may be plunged into the Hot-bed again, where they may remain till towards *Michaelmas*, when they should be removed into the Stove, and plunged into the Bark-bed, where they must be kept warm during the Winter-season, and should be frequently refreshed with Water ; but

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it must be given to them in small Quantity in cold Weather. The following Spring these Plants should be shifted into fresh Earth, and if they have made good Progress, they will require Pots a little larger than the former : the Hot-bed in the Stove should also be refreshed with some new Tan at this Season, to renew its Heat, and the Plants plunged therein ; which will cause them to push early in the Summer, so that they will have time to make good Progress before Winter. During the Summer-season, the Plants should have a large Share of free Air in warm Weather, and require plenty of Water ; their Leaves should also be frequently washed to cleanse them from Filth, otherwise they will not grow very fast. In two or three Years these Plants will produce their Flowers, when they will make an agreeable Variety amongst other tender Exotic Plants in the Stove.

The Seeds of the fourth Sort are so hard as often to remain a whole Year in the Ground, before the Plants appear, especially if the Earth in the Pots be not constantly watered ; so that if the Pots are not preserved in a proper Temperature of Heat in Winter, the Seeds will rot : therefore the best Method to make the Seeds vegetate in a short time, is to lay them under a Pot of Earth in the Tan-bed, as hath been directed for the *Bonduc*, and other hard *Indian* Seeds.

PTARMICA, Sneezwort.

To this Article must be added ;

1. PTARMICA *incana humilis, foliis laciniatis, absinthii emulis.* H. L. Dwarf hoary Sneezwort, with jagged Leaves, resembling Wormwood.

2. PTARMICA *Alpina, foliis argutis, partim serratis, partim integris.* Bocc. Mus. Alpine Sneezwort, with

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with narrow Leaves, Part of which are sawed on their Edges, and the other Part are whole.

3. *PTARMICA Cretica frutescens, santolinae facie*. Inst. R. H. Shrubby Sneezwort of Crete, with the Appearance of Lavender-cotton.

4. *PTARMICA orientalis, foliis cristatis*. Tourn. Cor. Eastern Sneezwort, with crested Leaves.

5. *PTARMICA orientalis, foliis cristatis longioribus, & capitulis majoribus*. Tourn. Cor. Eastern Sneezwort, with longer crested Leaves, and larger Heads.

6. *PTARMICA orientalis, santolinae folio, flore majore*. Tourn. Cor. Eastern Sneezwort, with a Lavender-cotton-leaf, and a larger Flower.

7. *PTARMICA orientalis, santolinae folio, flore minore*. Tourn. Cor. Eastern Sneezwort, with a Lavender-cotton-leaf, and a smaller Flower.

8. *PTARMICA orientalis, foliis tanacetii incanis, flore aureo*. Tourn. Cor. Eastern Sneezwort, with hoary Tansy-leaves, and a golden Flower.

9. *PTARMICA orientalis, foliis tanacetii incanis, semisflosculis florum pallide luteis*. Tourn. Cor. Eastern Sneezwort, with hoary Tansy-leaves, whose Half-florets are of a pale-yellow Colour.

10. *PTARMICA orientalis, foliis tanacetii incanis, semisflosculis florum brevioribus*. Tourn. Cor. Eastern Sneezwort, with hoary Tansy-leaves, whose Half-florets are very short.

11. *PTARMICA orientalis, santolinae folio, radice repente*. Eastern Sneezwort, with a Lavender-cotton-leaf, and a creeping Root.

12. *PTARMICA orientalis, tanacetii folio & facie, flore minimo*. Tourn. Cor. Eastern Sneezwort, with the Leaf and Face of Tansy, and the least Flower.

13. *PTARMICA orientalis incana,*

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foliis pennatis, semisflosculis florum vix conspicuis. Tourn. Cor. Hoary Eastern Sneezwort, with winged Leaves, and the Half-florets scarcely discernible.

14. *PTARMICA orientalis, foliis argenteis conjugatis*. Tourn. Cor. Eastern Sneezwort, with silvery conjugated Leaves.

All these Sorts of *Ptarmica* are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry lean Soil; for when they are in a moist rich Soil, they grow very luxuriant in the Summer, and are filled with Juice, which renders them less capable to resist the Cold, than when they are more stunted and woody; and they make a much better Appearance, when they grow slowly, than if they were greatly encouraged in their Growth; because they appear more hoary, and produce a greater Number of Flowers.

They may be all (except the eleventh Sort) propagated by Cuttings in the Summer Months, which should be planted in a shady Border of fresh Earth, and must be constantly watered, until they have taken Root; after which time they will require no farther Care, but to keep them clear from Weeds, until *Michaelmas*, when they should be carefully taken up, and transplanted where they are designed to remain; which must be done so early in the Autumn, that they may have time to get good Roots, before the Frost comes on, otherwise they will be in Danger of suffering greatly. The eleventh Sort propagating itself by its creeping Roots very fast, requires to be confined; otherwise it will spread and intermix with whatever Plants grow near it. This is also a very hardy Plant; but being of humble

humble Growth, makes no very good Figure in a Garden; wherefore it is seldom preserved, but by those Persons who are curious in Botany, for the sake of Variety.

Altho' these Plants do not produce very beautiful Flowers, yet they may be disposed in large Gardens, so as to make a very agreeable Diversity; for their hoary Leaves of different Shapes, when intermixed with other hardy Plants of the same Growth, on small Hillocks, will have a pretty Effect; and as they retain their Leaves all the Winter, so at that Season they add to the Variety: and in Summer, when their Flowers are produced, they alter the Prospect so as to be very agreeable.

They are all of them low Plants: the tallest and most shrubby of them seldom rises above two Feet high, and the other not half so high; so that they should not be mixed with larger Plants, because those would overbear and destroy them. When these Plants are well rooted, they require no other Culture, but to keep them clear from Weeds; for their Roots will abide many Years, provided they are not destroyed by very severe Frosts, which seldom happen in England.

PULMONARIA, Lungwort.

To this Article must be added;

1. PULMONARIA *vulgaris latifolia*, *flore albo*. *Inst. R. H.* Common broad-leaved Lungwort, with a white Flower.

2. PULMONARIA *Alpina*, *foliis mollibus subrotundis*, *flore cæruleo*. *Inst. R. H.* Alpine Lungwort, with soft roundish Leaves, and a blue Flower.

3. PULMONARIA *angustifolia*, *cæruleo flore*. *J. B.* Narrow-leaved Lungwort, with a blue Flower.

4. PULMONARIA *Alpina*, *angustifolio*, *Italica*. *Bocc. Mus.* Narrow-leaved Alpine Lungwort.

5. PULMONARIA *mitis*, *fragaria odore*. *Bocc. Mus.* Mild Lungwort smelling like Strawberries.

6. PULMONARIA *Cretica annua*, *calyce vesicario*. *Inst. R. H.* Annual Lungwort of Candy, with a bladder Flower-cup.

7. PULMONARIA *viridi*, *subrotundo*, *non maculato folio*. *Bocc. Mus.* Green Lungwort, with a roundish unspotted Leaf.

8. PULMONARIA *Cchia*, *echii folio verrucoso*, *calyce vesicario*, *flore albo*. *Tourn. Cor.* Lungwort of the Island Scio; with a warted Vipers-bugloss-leaf, a bladdered Flower-cup, and a white Flower.

9. PULMONARIA *Lesbia*, *echii folio verrucoso*, *calyce vesicario*, *flore cæruleo*. *Tourn. Cor.* Lungwort of Lesbos, with a warted Vipers-bugloss-leaf, a bladdered Flower-cup, and a blue Flower.

10. PULMONARIA *orientalis*, *calyce vesicario*, *foliis echii*, *flore purpureo infundibuliformi*. *Tourn. Cor.* Eastern Lungwort, with a bladdered Flower-cup, a Vipers-bugloss-leaf, and a purple funnel-shaped Flower.

11. PULMONARIA *orientalis*, *calyce vesicario*, *foliis echii*, *flore albo infundibuliformi*. *Tourn. Cor.* Eastern Lungwort, with a bladdered Flower-cup, a Vipers-bugloss-leaf, and a white funnel-shaped Flower.

The first, second, third, fourth, fifth and seventh Sorts, are abiding Plants, which may be propagated by parting of their Roots: the best time for doing of this is in Autumn, that they may be rooted before the Frost comes on. They should have a shady Situation, and a fresh undunged Soil, in which they will thrive better than a rich Soil.

The other Sorts, being annual, are propagated only by Seeds. The best time to sow these is in Autumn, soon after they are ripe; for the Plants will

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will resist the Cold of our Winters very well, and flower early the following Summer, when good Seeds may be obtained; whereas those which are sown in the Spring, do sometimes miscarry. These Seeds should be sown where they are designed to remain; for the Plants do not succeed very well, when they are transplanted. When the Plants come up, they require no other Culture, but to keep them clear from Weeds, and, where they are too close, to thin them. If they are permitted to scatter their Seeds, they will come up, and be better than when they are sown. All these Plants are preserved by the Curious in Botany; but as they have no great Beauty, they are not often kept in other Gardens.

PULSATILLA, Pasque-flower.

To this Article must be added;

1. PULSATILLA folio tenuius incis, & flore minore, five palustris. C. B. P. Marsh Pasque-flower, with fine-cut Leaves, and a smaller Flower.

2. PULSATILLA folio tenuius incis, seu palustris, flore dilutiore. H. R. Par. Marsh Pasque-flower, with a fine-cut Leaf, and a pale Flower.

3. PULSATILLA apii folio, vernalis, flore majore. C. B. P. Spring Pasque-flower, with a Smallage-leaf, and a larger Flower.

4. PULSATILLA apii folio, vernalis, flore minore. C. B. P. Spring Pasque-flower, with a Smallage-leaf, and a smaller Flower.

5. PULSATILLA apii folio, autumnalis. C. B. P. Smallage-leaved Pasque-flower, of the Autumn.

6. PULSATILLA folio anemones scandae, five subrotundo. C. B. P. Pasque-flower with a roundish Leaf.

7. PULSATILLA Pyrenaica, flore

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albo duplici. H. R. Par. Pasque-flower of the Pyrenæes, with a double white Flower.

8. PULSATILLA lutea, passinacæ sylvestris folio. C. B. P. Yellow Pasque-flower, with a wild Parsnip-leaf.

9. PULSATILLA orientalis, tenuissime divisa & villosa, flore rubro. Tourn. Cor. Eastern Pasque-flower, with a hairy finely-divided Leaf, and a red Flower.

10. PULSATILLA Africana, multifida flore, apii folio rigido. Raii Supp. African Pasque-flower, with a multifid Flower, and a stiff Smallage-leaf.

All these Sorts (except the last) are very hardy Plants, which may be propagated by Seeds, in the same manner as is directed in the former Volumes of the Gardeners Dictionary. These should have a pretty strong loamy Soil, and a moist Situation, where they will thrive, and produce their Flowers.

The last Sort is a tender Plant, which must be sheltered in Winter, otherwise it will not live in this Climate. This is also propagated by Seeds, which should be sown soon after it is ripe, in Boxes or Pots, which should be placed in a shady Situation, and frequently refreshed with Water. In Autumn the Plants will come up, when they should be removed into a Situation where they may have more Sun, and in dry Weather they must be frequently watered. Towards the Middle or latter End of October, when the Nights begin to be cold, the Plants must be removed, and placed under a Hot-bed Frame, where they may be screened from hard Frosts; but in mild Weather they should have as much free Air as possible. In the following Spring, the Plants should be removed each into a separate Pot filled with

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fresh undunged Earth, and placed where they may enjoy the Morning Sun, where they should remain all the Season while they are exposed; and in dry Weather they must be frequently watered; and every Winter they should be sheltered under a Frame as before. With this Management the Plants will thrive and flower every Year, and sometimes will produce good Seeds.

PYROLA, Winter-green.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed circularly: out of whose Cup rises the Pointal ending in a Proboscis, which afterwards turns to a roundish Fruit, which is channelled, generally umbellated, and consisting of five Cells, which are commonly full of small Seeds.

The Species are:

1. PYROLA *rotundifolia major*. C. B. P. Great round-leaved Winter-green.

2. PYROLA *rotundifolia minor*. C. B. P. Small round-leaved Winter-green.

3. PYROLA *folio mucronato serrato*. C. B. P. Winter-green with a pointed Leaf, sawed on the Edges.

4. PYROLA *frutescens, arbuti folio*. C. B. P. Shrubby Winter-green, with an Arbutus-leaf.

The first Sort grows wild in many Places in the North of England, on mossy Moors and Heaths, as also in shady Woods, so that it is very difficult to preserve in Gardens, in the Southern Parts.

The other three Sorts are Natives of the Hills, in Germany, Italy, and Hungary. These are all of them very difficult to cultivate in Gardens; for as they grow on very cold Hills, and in a mossy moorish Soil, so when they are removed to a better Soil, and in a warmer Situation, they

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seldom continue long. The best time to remove these Plants into Gardens, is about Michaelmas; when they should be taken up with Balls of Earth to their Roots, and planted in a shady Situation, and on a moist undunged Soil, where they should be frequently watered in dry Weather, otherwise they will not thrive. Some of these Plants may be set in Pots, which should be filled with Earth as nearly resembling that in which they naturally grow as possible; and place them in a shady Situation, where if they are constantly watered in dry Weather, they will thrive very well.

The Leaves of the first Sort are shaped like those of the Pear-tree, from whence the Name was given to it: these Leaves are of a deep-green Colour, and continue most part of the Year; but there is no great Beauty in their Flowers, tho' for Variety they are admitted into many curious Gardens.

The first Sort is ordered by the College of Physicians to be used in Medicine, and is generally brought over from Switzerland, together with other vulnerary Plants; amongst which Class this Plant is ranged, and by some hath been greatly commended.

PYRUS, The Pear-tree.

To this Article must be added;

1. L'AURATE, *i. e.* The Aurate. is an excellent Pear: it ripens the middle of July. It is a large Pear shaped like the Muscat, but is red on the Side next the Sun; this is at present very rare in England.

2. L'EPARQUE, ou BEAU-PRESENT, *i. e.* The fine Present; it is also called Saint Samson. This is a large long green Pear, with a Blush of Red next the Sun. The Flesh is breaking; it hath a very long Stalk, and ripens the Beginning of August.

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3. LE ROUSSELET DE REIMS, it is an excellent Pear, about the Size of the Catharine, or a little larger; it is russet on the Side next the Sun, and of a brownish-yellow Colour on the other Side. It ripens the End of *August*.

4. L'EPINE D'ETE, *i. e.* The Summer Thorn. This is a large long Pear, with a smooth green Skin: the Flesh is melting, and somewhat perfumed. This is placed amongst the good Pears. It ripens the Beginning of *September*.

5. LA POIRE D'OEUF, *i. e.* The Egg Pear, so named from the Figure of its Fruit, which is shaped like an Egg. This is a large good Pear of a greenish Colour, striped with Red on the Side next the Sun; the Flesh is tender and half-buttery, and hath a high Flavour. This comes from *Germany*, where it is greatly esteemed. It ripens the Beginning of *September*.

6. L'ORANGE TULIPPEE. The Orange Tulip is a large round Pear, which is very red on the Side next the Sun, but greenish on the other Side; the Flesh is half-breaking, and a little stony, but hath an agreeable Flavour. It ripens the Beginning of *September*.

7. LA MANSUETTE. This Pear greatly resembles the Winter Boncretien in its Fruit, Wood, and Leaves, but is smaller at the Eye. It is half-breaking, and hath an agreeable Flavour. It ripens the End of *September*. This Pear is greatly esteemed in *Flanders*.

8. LE MUSCAT D'ALLEMAN, *i. e.* The German Muscat. This is an excellent Pear, more long than round, of the Shape of the Winter-royal; but is less toward the Eye, and is more russet, and of a red Colour next the Sun; it is buttery, melting, and a little musky. This

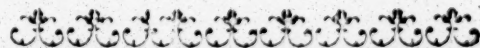
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is in Eating in *March*, *April*, and sometimes in *May*, if it keeps so long.

9. LA BERGAMOTTE DE HOLLANDE, *i. e.* The *Holland* Bergamot: it is large and round, of the Shape of the ordinary Burgamot. The Colour is greenish, the Flesh is half-buttery and tender; the Juice is highly flavoured. This is a very good Pear, and will keep till *May*.

10. LA POIRE DE NAPLES, *i. e.* The Pear of *Naples*. This is a pretty large, long, greenish Pear; the Flesh is half-breaking, the Juice is sweet, and a little vinous. It is in Eating in *March*. I am in Doubt whether this Pear is not in some Places taken for a Saint Germain; for there is a Pear in some Gardens, very like the Saint Germain, which will keep till *April*, and this Pear agrees with the Characters of that.

The Method of Planting and Pruning of Pears being fully exhibited in the former Volumes of the *Gardeners Dictionary*, I shall not repeat it in this Place.



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QUERCUS, The Oak-tree.

To this Article must be added;

1. QUERCUS parva, *sive* Phægus Græcorum, & Esculus Plinii. C. B. P. The sweet Oak.

2. QUERCUS calyce hispido, glande minore. C. B. P. Oak with small Acorns, having a prickly Cup.

3. QUERCUS Burgundiaca, calyce hispido. C. B. P. The Burgundy Oak, whose Acorns have prickly Cups.

fresh undunged Earth, and placed where they may enjoy the Morning Sun, where they should remain all the Season while they are exposed; and in dry Weather they must be frequently watered; and every Winter they should be sheltered under a Frame as before. With this Management the Plants will thrive and flower every Year, and sometimes will produce good Seeds.

PYROLA, Winter-green.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed circularly: out of whose Cup rises the Pointal ending in a Proboscis, which afterwards turns to a roundish Fruit, which is chanelled, generally umbellated, and consisting of five Cells, which are commonly full of small Seeds.

The Species are:

1. PYROLA *rotundifolia major*.
C. B. P. Great round-leaved Winter-green.

2. PYROLA *rotundifolia minor*.
C. B. P. Small round-leaved Winter-green.

3. PYROLA *folio mucronato serrato*. C. B. P. Winter-green with a pointed Leaf, sawed on the Edges.

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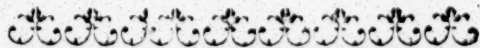
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3. QUERCUS Burgundiaca, calycis hispido. C. B. P. The Burgundy Oak, whose Acorns have prickly Cups.

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4. *QUERCUS pedem vix superans.* C. B. P. Dwarf Oak.

5. *QUERCUS foliis molli lanugine pubescentibus.* C. B. P. Oak with soft woolly Leaves.

6. *QUERCUS gallam exiguae nucis magnitudine ferens.* C. B. P. Oak which bears small Galls not larger than Nuts.

7. *QUERCUS foliis muricatis, non lanuginosis, galla superiori simili.* C. B. P. Oak with prickly Leaves, which are not woolly, bearing Galls like the former.

8. *QUERCUS foliis muricatis, minor.* C. B. P. Smaller Oak, with prickly Leaves.

9. *QUERCUS latifolia, magno fructu, calyce tuberculis obsito.* Tourn. Cor. Broad-leaved Oak, with large Acorns, whose Cups are beset with Tubercles.

10. *QUERCUS orientalis, glande cylindriciformi, longo pediculo insidente.* Tourn. Cor. Eastern Oak, with cylindrical Acorns growing on long Footstalks.

11. *QUERCUS orientalis, castaneæ folio, glande recondita in cupula crassa & squamosa.* Tourn. Cor. Eastern Oak, with a Chestnut-leaf, whose Acorns are closely shut up in a thick scaly Cup.

12. *QUERCUS orientalis angustifolia, glande minori, cupula crinita.* Tourn. Cor. Eastern Oak, with a narrow Leaf, and a smaller Acorn, whose Cup is hairy.

13. *QUERCUS Orientalis latifolia, glande maxima, cupula crinita.* Tourn. Cor. Eastern Oak with a broad Leaf, and the largest Acorn, whose Cup is hairy.

14. *QUERCUS orientalis latifolia, foliis ad costam pulchrè incisis, glande maxima, cupula crinita.* Tourn. Cor. Eastern broad-leaved Oak, whose Leaves are finely cut to the Stalks, and a very large Acorn, whose Cup is hairy.

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15. *QUERCUS orientalis, folio subrotundo minori, glande magna striata.* Tourn. Cor. Eastern Oak, with a smaller roundish Leaf, and a large striated Acorn.

16. *QUERCUS orientalis, folio subrotundo, leviter inciso, fructu minori cylindriciformi.* Tourn. Cor. Eastern Oak, with a roundish Leaf, lightly cut in, and a smaller cylindrical Fruit.

17. *QUERCUS, an petius, Ilex Marilandica, folio longo angusto salicis.* Raii Hist. The swamp willow Oak of Maryland.

18. *QUERCUS sempervirens, folio oblongis non sinuatis.* Banist. Live Oak.

19. *QUERCUS (forte) Marilandica, folio trifido, ad sassafras accedente.* Raii Hist. The black Oak of Maryland.

20. *QUERCUS folio non serrato, in summitate triangulo.* Catesb. Hist. Nat. Carolin. The Water Oak.

21. *QUERCUS Caroliniensis, virentibus venis, muricata.* Catesb. Hist. Nat. Carolin. The white Oak of Carolina.

22. *QUERCUS humilior, salicis folio brevior.* Catesb. Hist. Nat. Carolin. Dwarf Highland willow Oak.

23. *QUERCUS esculi divifora, foliis amplioribus aculeatis.* Pluk. Phyt. Red Oak of Maryland.

24. *QUERCUS Mariana, oleæ folio, glande parva compresso, ad apiculam eleganter radiato.* Pluk. Mantiss. Swamp Spanish Oak.

25. *QUERCUS Mariana, muricatis castaneæ foliis subtus villosis.* Pluk. Mant. Champion Chestnut-oak of Maryland.

The eight first-mentioned Sorts grow on the Hills in Spain, Portugal, Germany and Hungary, from whence their Acorns may be obtained; which should be sown after the manner directed

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directed for the common Sorts, in the former Volumes of the *Gardners Dictionary*; for altho' some of these Sorts naturally grow in Countries which are warmer than *England*, yet they will thrive as well as the common Sort in the open Air.

The next eight Sorts were discovered by Dr. *Tournefort* in the *Levant*, and some of the Sorts have been introduced into the *English* Gardens, where they thrive, and are as hardy as the common Sort.

The other nine Sorts are Natives of the cold Parts of *America*: most of them grow in *New England*, *Virginia* and *Maryland*, and other Places on the Continent, where the Woods have not been cleared. These most of them delight in a Soil which is moist; for in dry Land they do not thrive well. They may be propagated by sowing of their Acorns, after the same manner as the common Sort; but as these must be procured from *America*, (there being none of these Trees in *England*, which produce Fruit at present) they should be put up in Sand, soon after they are ripe, and forwarded to *England*: for all Sorts of Acorns are subject to perish, if they are not planted, or put up in Sand, in a very little time after they fall from the Trees: so that it is more difficult to transport these Seeds, than those of most other Plants.

When the Acorns arrive, they should be planted as soon as possible; for if they are good, it will be near two Months from the Time of Sowing to the appearing of the Plants; and the earlier these come up in the Spring, the more Time they will have to get Strength before Winter, and will be in less Danger of suffering from the Cold. For while these Plants are very young and tender, they are often injured by

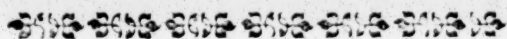
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severe Frost; tho', when they have obtained Strength, they will endure the greatest Cold of our Winters extremely well. Therefore, if the first Winter after the Plants come up from Acorns, should prove very severe, it will be proper to screen them from the Frost; which may be done by laying some Branches of Oak, with the decayed Leaves on them, or some dry Fern or Furze over them, which will prevent the Frost from penetrating very deep in the Ground; and these lying hollow, will admit a sufficient Quantity of Air to the Plants, to prevent their taking the Mould, which is very injurious to them. After the first Year, these Sorts may be treated in the same manner as the common Oak, by transplanting them into Nurseries, or the Places where they are to remain.

These Sorts of Oak, being all of them inferior to the common Sort of our own Growth, in regard to their Timber, should not be cultivated for that Purpose: but as some of them have large beautiful Leaves, they make an agreeable Variety, when mixed with other Trees in Gardens, and other small Plantations. And as some of these Sorts are of very humble Growth, they may be planted for Underwood, in such Plantations where they will have a good Effect; and many of the Sorts continue green throughout the Year, which renders them more valuable; and those Sorts whose Leaves are downy underneath, make a most agreeable Prospect, when viewed at a Distance; for as the Wind turns up the Leaves, they appear to be covered over with Silver; and these Trees rise to a great Height. There is one of the fifth Sort growing at *Ragnal* near *Tucksford* in *Nottinghamshire*, which is upward of

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farty Feet high, and produces a great Number of Acorns almost every Year, from whence several Plants have been raised. But these Acorns, being so closely shut up in their Cups, do not ripen well in a cold wet Season.



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R ANDIA.

The Characters are ;

It hath a Flower consisting of one Leaf, whose lower Part is tubulous, but the upper Part is expanded, and for the most part divided into five Segments ; the Flower is succeeded by an oval Fruit, having but one Cell, which is filled with flat cartilaginous Seeds surrounded by a Pulp.

There is but one Species of this Plant at present known ; viz.

RANDIA frutescens, spinis bijugis, foliis subrotundis, floribus albis.
Hoult. Shrubby Randia, with Spines growing two at a Joint, roundish Leaves, and white Flowers.

This Plant is figured and described by Sir Hans Sloane in his History of Jamaica, under the Title of *Lycium forte, foliis subrotundis integris, spinis & foliis ex adverso sitis.* Vol. I. p. 40.

This Shrub grows plentifully about La Vera Cruz, from whence the Seeds were sent by the late Dr. William Houstoun, who gave this Name to it, in Honour to Mr. Isaac Rand, a curious Botanist.

This Shrub rises to the Height of ten or twelve Feet in the Country of its Growth, and divides into a great Number of Branches, which are always produced by Pairs opposite, as are also the Leaves and

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Spines. The Flowers are small, and of a white Colour, which are succeeded by hard oval-shaped Fruit, about the Size of a large Spanish Nut, which is full of flat Seeds inclosed in a soft blackish Pulp.

It is propagated by Seeds, which should be sown early in the Spring, in Pots filled with light fresh Earth, and plunged into a Hot-bed of Tan-ners-bark, observing to water the Earth frequently to promote the Vegetation of the Seeds. When the Plants come up, they must have fresh Air admitted to them every Day, when the Weather is warm, and they must be often refreshed with Water. In about a Month's time after the Plants come up, they will be fit to transplant ; when they should be carefully shaken out of the Pots, and each planted into a separate small Pot filled with light fresh Earth, and then plunged into the Hot-bed again ; where they must be screened from the Sun until they have taken new Root, after which time they must have Air and Moisture in proportion to the Warmth of the Season. The Plants may remain in the Hot-bed till toward Michaelmas, when the Nights begin to be cold : at which time they should be removed into the Stove ; and if they are plunged in the Bark-bed, it will greatly forward their Growth, tho' they will live in the dry Stove, if they are kept in a moderate Temperature of Heat, and are frequently watered. During the two first Seasons, while the Plants are young, it will be proper to keep them constantly in the Stove (but then their Leaves must be washed, whenever they contract Filth) ; which will bring them forward : but after the Plants have obtained Strength, they may be exposed every Summer to the open Air, provided they are placed in a warm Situation : but in Winter

Winter they must be constantly placed in a Stove, and kept in a moderate Warmth ; otherwise they will not live in this Country.

The Leaves of this Plant continue green throughout the Year, which renders the Plant valuable, because it makes an agreeable Variety in the Winter Season, when mixed with other tender Plants. Sir Hans Sloane found this Plant in the Island of Barbadoes.

RAPUNCULUS, Rampions.

The Characters are ;

The Flower consists of one Leaf, in its Form approaching to a Bell-shape ; but is so expanded and cut, that it almost represents the Figure of a Star. The Pointal is commonly split into two horned Divisions, and the Flower-cup becomes a Fruit, which is divided into three Cells, inclosing many small Seeds.

The Species are ;

1. RAPUNCULUS *spicatus*. C. B. P. Spiked Rampion.

2. RAPUNCULUS *spicatus albus*. C. B. P. Spiked Rampion, with a white Flower.

3. RAPUNCULUS *Alpinus corniculatus*. C. B. P. Horned Rampion of the Alps.

4. RAPUNCULUS *scabiosæ capitulo cæruleo*. C. B. P. Rampions with blue scabious-like Heads.

5. RAPUNCULUS *scabiosæ capitulo albo*. C. B. P. Rampion with white scabious-like Heads.

6. RAPUNCULUS *spicatus, flore flavescente*. Inst. R. H. Spiked Rampion, with a yellowish Flower.

7. RAPUNCULUS *Creticus, seu pyramidalis altera*. C. B. P. Pyramidal Rampion of Crete.

8. RAPUNCULUS *folio gramineo*. Inst. R. H. Grass-leaved Rampion.

9. RAPUNCULUS *Creticus petromarula, flore albo*. Tourn. Cor. Rampion of Crete, with a white Flower.

10. RAPUNCULUS *orientalis, foliis angustis dentatis*. Tourn. Cor. Eastern Rampion, with narrow indented Leaves.

11. RAPUNCULUS *orientalis angustifolius multicaulis totus floridus*. Tourn. Cor. Eastern narrow-leav'd Rampion, with many Stalks, filled with Flowers.

12. RAPUNCULUS *orientalis, campanulæ pratensis folio*. Tourn. Cor. Eastern Rampion, with a meadow Bellflower-leaf.

13. RAPUNCULUS *orientalis, foliis longioribus, asperis & rigidis*. Tourn. Cor. Eastern Rampion, with longer rough stiff Leaves.

14. RAPUNCULUS *orientalis altissimus, foliis glabris & rigidis*. Tourn. Cor. The tallest Eastern Rampion, with smooth stiff Leaves.

15. RAPUNCULUS *orientalis, hesperidis folio*. Tourn. Cor. Eastern Rampion, with a Dames-violet-leaf.

These are all of them hardy Plants, which will thrive in the open Air : they are propagated by Seed, which should be sown in Autumn ; for if they are kept out of the Ground till the Spring, they frequently fail. These Seeds should be sown on a Bed of fresh undunged Earth, where they are designed to remain ; for they do not thrive so well when they are transplanted. Therefore the best Method is, to make small Drills cross the Bed, about eighteen Inches asunder, and sow the Seeds therein : then cover them lightly over with Earth ; for if they are buried too deep, they will rot in the Ground. In about a Month after the Seeds are sown, the Plants will come up ; when they should be diligently weeded, which is all the Care they will require till Spring ; at which time the Plants should be thinned where they are too close, so as to leave them six or seven Inches apart in the Rows ; and after-

ward they require no farther Attention, but to keep them clear from Weeds. In June the Plants will flower, and if the Summer prove favourable, they will produce ripe Seeds.

As these Plants do not continue above or two three Years, there should be Seeds sown every other Year, to continue the Sorts; for they are Plants which require little Trouble to cultivate them, and their Flowers make a pretty Variety in large Gardens, therefore they should be allowed a Place amongst other hardy Flowers.

RAPUNTIIUM, Cardinal Flower.

To this Article must be added;

1. RAPUNTIIUM *Americanum*, *floribus albis*. *Inst. R. H.* American Cardinal Flower, with white Flowers.

2. RAPUNTIIUM *Americanum*, *coccineo flore, lineis albis eleganter picto*. *Inst. R. H.* American Cardinal Flower, with a scarlet Flower, elegantly striped with White.

3. RAPUNTIIUM *Americanum altissimum*, *foliis circii, flore virescente*. *Plum. Cat.* The tallest American Cardinal Flower, with Leaves like the melancholy Thistle, and greenish Flowers.

4. RAPUNTIIUM *Americanum*, *foliis circii lucidis, flore multiplici coccineo conglobato*. *Plum. Cat.* American Cardinal Flower, with shining melancholy Thistle-leaves, and many scarlet Flowers growing in Clusters.

5. RAPUNTIIUM *Americanum*, *trachelii folio, flore purpurascens*. *Plum. Cat.* American Cardinal Flower, with a Throatwort-leaf, and a purplish Flower.

6. RAPUNTIIUM *Americanum*, *foliis oblongis, floribus parvis cœruleis, spica longissima*. American Cardinal Flower, with oblong Leaves, and

small blue Flowers, growing in a long Spike.

7. RAPUNTIIUM *urens Salomonicæ*. *Mor. H. R. Blæss.* Burning Cardinal Flower of *Blais*.

8. RAPUNTIIUM *urens, flore purpureo-cœruleo*. *Inst. R. H.* Burning Cardinal Flower, with a blueish purple Flower.

9. RAPUNTIIUM *Africanum minus angustifolium, flore violaceo*. *Inst. R. H.* Lesser narrow-leaved African Cardinal Flower, with a violet-coloured Flower.

10. RAPUNTIIUM *Ethiopicum, violaceo galeato flore, foliis pinnatis*. *Breyn. Cent.* Ethiopian Cardinal Flower, with a violet galeated Flower, and Leaves like the Pinastr.

11. RAPUNTIIUM *Ethiopicum, cœruleo galeato flore, foliis corymbatis*. *Breyn. Cent.* Ethiopian Cardinal Flower, with a blue galeated Flower, and Leaves like Buckhorn Plantain.

12. RAPUNTIIUM *Ethiopicum, cœruleo galeato flore, foliis dentatis*. *Breyn. Cent.* Ethiopian Cardinal Flower, with a blue galeated Flower, and indented Leaves.

13. RAPUNTIIUM *Canadense, primulum, linariæ folio*. *Sarraz.* Low Canady Cardinal Flower, with a Toad-flax-leaf.

14. RAPUNTIIUM *Creticum minus, bellidis folio, flore maculato*. *Tourn. Cor.* The least Cardinal Flower of *Crete*, with a daisy Leaf, and a spotted Flower.

Most of these Sorts are biennial Plants, which commonly perish when they have produced Seed; wherefore they should be sown every Year, in order to continue a Succession of them to flower annually. The fifth Sort is an annual Plant, which flowers and seeds the same Summer it is sown, and soon after perishes. If the Seeds of this Kind are permitted

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to scatter in the Pots, and the Pots kept in the Stove, the Plants will come up in Autumn, and flower early the following Spring.

The Seeds of the other Sorts should be sown in Pots filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, and must be frequently watered; otherwise the Seeds will remain in the Earth several Months, before the Plants will appear; and sometimes I have known the Seeds remain in the Earth a whole Year, and the Plants have come up the following Spring. When the Plants come up, they should be transplanted each into a separate small Pot, and plunged into the Hot-bed again to bring them forward; but in *June* they should be inured to bear the open Air by degrees, and toward the End of that Month, they may be removed out of the Hot-bed, and placed in a warm Situation, where they may have the Morning Sun, and must be constantly watered in dry Weather. In this Place they may remain till *October*, when they should be placed under a common Hot-bed Frame, where they should have as much free Air as possible in mild Weather; but must be covered in frosty Weather, otherwise they will not live in this Country. The Spring following the Plants must be shifted into larger Pots, and placed abroad again in a sheltered Situation, and duly watered, otherwise they will not flower very strong. In *July* the Plants will produce their Flowers, and if the Autumn proves favourable, they will perfect their Seeds.

RAUVOLFIA.

The Characters are;

It hath a tubulous Flower consisting of one Leaf, whose upper Part spreads open into a plain Surface, and is cut into several Parts; from whose Cup arises the Pointal, fixed like a

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Nail, which afterward becomes an almost globular soft Fruit, full of Milk, in which are contained one or two hard Seeds.

The Species are;

1. *RAUVOLFIA tetraphylla angustifolia. Plum. Nov. Gen.* Four-leaved Rauvolfia, with narrow Leaves.

2. *RAUVOLFIA tetraphylla latifolia. Plum. Nov. Gen.* Four-leaved Rauvolfia, with broad Leaves.

This Name was given to this Genus of Plants by Father *Plumier*, who was the Person that discovered them in *America*, in Honour to *Leonard Rauwolf*, who was a curious Botanist, and flourished about the Year 1583. He travelled into the *Holy-land*, and several other Places in the East, and published his Travels in *High-Dutch*, which were translated into *English* under the Inspection of the great Mr. *Ray*.

These Plants grow plentifully at *Campechy*, from whence I received their Seeds, which were collected by Mr. *Robert Millar*, Surgeon.

The Seeds of these Plants should be sown in Pots filled with fresh Earth, and plunged into a Hot-bed of Tanners Bark; for being very hard, they frequently remain a long time in the Ground: therefore when they are in Pots, they may be shifted from one Bed to another, as their Heat decays. When the Plants come up, they must be frequently refreshed with Water, but it must not be given them in large Quantities; for the Plants being succulent, and full of a milky Juice, are in Danger of rotting with too much Moisture. They should also have a large Share of fresh Air admitted to them in warm Weather; and when they are about two Inches high, they should be transplanted each into a separate small Pot, filled with fresh light Earth, and then plunged into the Hot-bed again;

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again; observing to shade them from the Sun, until they have taken new Root; after which time, they should have free Air admitted to them every Day, in proportion to the Warmth of the Season, and they must be often refreshed with Water. In this Hot-bed the Plants may remain till toward *Michaelmas*, when they should be removed into the Stove, and plunged into the Tanners Bark; where they must be kept warm, and not have too much Moisture in cold Weather, lest it rot them.

As these Plants are Natives of very hot Countries, they will not live in the open Air in *England*: therefore they should constantly remain in the Stove; and if they are put into the Bark-bed, they will thrive much faster, than when they are placed on Stands in a dry Stove. But in the Summer Season, they should have a large Share of fresh Air admitted to them, and the Leaves of the Plants must be now-and-then washed with a Sponge, to clear them from the Filth they are apt to contract, which, if suffered to remain, will retard the Growth of the Plants. Where this Care is taken of them, they will thrive very fast, and the second Year will produce Flowers, and continue so to do for many Years; but as yet they have not perfected their Seeds in *England*. They may also be propagated by Cuttings, which should be laid to dry for two or three Days before they are planted; and then should be plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which time they may be treated as the seedling Plants.

RESEDA, Bastard-rocket.

The Characters are;

It hath a polypetalous anomalous

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Flower, composed of several dissimilar Petals, out of whose Cup arises the Pointal, which afterward becomes a membranaceous Fruit, for the most part three or four-cornered, oblong, and, as it were, cylindraceous, pregnant with roundish Seeds.

The Species are;

1. *RESEDA vulgaris. C. B. P.* Common Bastard-rocket.

2. *RESEDA crispa Gallica. Bocc. Rar. Pl.* Curled French Bastard-rocket.

3. *RESEDA latifolia, flore flavo. Mor. Hist.* Broad-leaved Bastard-rocket, with a yellow Flower.

4. *RESEDA foliis calcitrapæ, flore albo. Mor. H. R. Blas.* Bastard-rocket with Star-thistle-leaves, and a white Flower.

5. *RESEDA minor vulgaris. Inst. R. H.* Smaller common Bastard-rocket.

6. *RESEDA minor vulgaris, foliis minus inciso. Inst. R. H.* Smaller common Bastard-rocket, with a Leaf less cut.

7. *RESEDA minor vulgaris, foliis integris. Inst. R. H.* Small common Bastard-rocket, with whole Leaves.

8. *RESEDA Pyrenaica, linaria folio glauco. Schol. Bot.* Pyrenean Bastard-rocket, with a glaucous toad-flax Leaf.

These Plants are preserved in the Gardens of some Persons, who are curious in Botany; but at present they are not used in Medicine. They are all of them very hardy Plants, which are propagated by Seeds, which should be sown in the Spring, on an open Bed of fresh undunged Earth, in the Place where they are designed to remain; and when the Plants come up, they should be houghed to separate them, where they are too close, also to destroy the Weeds. The four first Sorts should be allowed eighteen Inches or two Feet; but the

other

other Sorts, being of less Growth, do not need above half that room. The Weeds should be constantly houghed down between the Plants when they arise, which is all the Culture the Plants require. Some of these Plants will flower the same Year they are sown, when they come up early in the Spring; but in general they do not flower till the second Year, when they produce their Seeds, and the Plants commonly perish soon after. If the Seeds are permitted to scatter, the Plants will come up, and stock the Ground, so as to become Weeds.

RHAMNUS, The Buckthorn.

To this Article must be added;

1. RHAMNUS *catharticus minor, folio longiori*. Inst. R. H. Lesser purging Buckthorn, with a longer Leaf.

2. RHAMNUS *tertius, flore herbaceo, baccis nigris*. C. B. P. Clusius's third Buckthorn, with an herbaceous Flower, and black Berries.

3. RHAMNUS *Hispanicus, buxi folio ampliore*. Inst. R. H. Spanish Buckthorn, with a larger Box-leaf.

4. RHAMNUS *Hispanicus, oleæ folio*. Inst. R. H. Spanish Buckthorn, with an Olive-leaf.

5. RHAMNUS *Hispanicus, hyperici folio*. Inst. R. H. Spanish Buckthorn, with a St. Johns-wort-leaf.

6. RHAMNUS *Creticus, amygdali folio minori*. Tourn. Corn. Candy Buckthorn, with a smaller Almond-leaf.

7. RHAMNUS *orientalis, alaterni folio*. Tourn. Cor. Eastern Buckthorn, with an Alaternus-leaf.

8. RHAMNUS *Creticus, buxi folio minori*. Tourn. Cor. Candy Buckthorn, with a smaller Box-tree-leaf.

9. RHAMNUS *orientalis, amygdali folio ampliore*. Tourn. Cor. Eastern Buckthorn, with a larger Almond-leaf.

These Plants are all of them Natives of warmer Countries than England; but yet they are hardy enough to thrive in the open Air very well, if they are planted in sheltered Situations: and as they are Shrubs of moderate Growth, may be admitted to have a Place in Wilderness Quarters, where they will live under taller Trees, and add to the Variety.

They may be propagated either by Seeds, which should be sown soon after they are ripe; or by laying down of the tender Branches, in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary* for the common Sort.

But if these Plants are raised from Seeds, they will require a little Care the first Winter, if the Frost should prove severe; in which case there should be some dry Fern or Oak-branches with their Leaves on, laid over them; which will protect them from the Frost, and at the same time admit Air to the Plants, to prevent their growing mouldy; which oftentimes destroys the tender Parts of Plants, when the Air is too much excluded from them.

The first Sort here enumerated seldom rises above four or five Feet high; but most of the other Sorts will grow to the Height of ten or twelve Feet, and divide into many Branches, so as to form large Shrubs; and being different in their Leaves from each other, they make an agreeable Variety; for which Reason they are preserved by such Persons as delight in hardy Trees and Shrubs.

RHUS, Sumach.

To this Article must be added;

1. RHUS *Americanum, panicula sparsa herbacea, ramis patulis glabris*. Hort. Elth. American Sumach,

mach, with a loose herbaceous Panicle, and low smooth Branches.

2. *Rhus folio ulmi. C. B. P.* Elm-leaved Sumach.

The first of these Plants was brought from *North Carolina*, and I have since received the Seeds of this Kind from *Pennsylvania*, where it grows in great Plenty. This Sort doth not grow very large, being seldom above six or eight Feet high; but divides into several Branches, which grow more regular than most of the other Sorts; and the Flowers are produced on the Tops of the Branches, which are in very large loose Panicles, and of a yellowish green Colour. The tender Shoots of this Plant are of a purplish Colour, and smooth; and the Leaves are smooth, having a great Number of Pinnæ on each.

The second Sort grows plentifully in the South of *France*, and in *Spain*; but is at present very rare in *England*. This Sort is directed by the College of Physicians to be used in Medicine; and in the South of *France*, it is used instead of Oak-bark for tanning of Leather.

Both these Sorts are very hardy Plants, which will live in the open Air in *England*, and are very proper to plant with other hardy Shrubs in Quarters of Wilderness-work, where they will make an agreeable Variety. These may be propagated by Seeds, or from Suckers or Layers, after the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the common *Virginian Sumach*.

RICINOIDES, Physic-nut.

To this Article must be added;

1. *RICINOIDES frutescens, althææ folio. Plum. Cat.* Shrubby Physic-nut, with a Marsh-mallow-leaf.

2. *RICINOIDES foliis populi bir-*

futis. Plum. Cat. Physic-nut with hairy Poplar-leaves.

3. *RICINOIDES frutescens, linariæ foliis obtusis. Plum. Cat.* Shrubby Physic-nut, with blunt Toad-flax-leaves.

4. *RICINOIDES folio citrii, argenteo polline consperso. Plum. Cat.* Physic-nut with a Citron-leaf, powdered over with Silver.

5. *RICINOIDES elæagni folio. Plum. Cat.* Physic-nut with a wild Olive-leaf.

6. *RICINOIDES verbasci folio. Plum. Cat.* Physic-nut with a Mullein-leaf.

7. *RICINOIDES castanæ folio. Plum. Cat.* Physic-nut with a Chesnut-leaf.

8. *RICINOIDES herbaceum, foliis trifidis vel quinquesidis & serratis. Houst.* Herbaceous Physic-nut, with three or five sawed Leaves.

9. *RICINOIDES folio subrotundo serrato, fructu parvo conglomerato. Houst.* Physic-nut with a roundish sawed Leaf, and small Fruit, growing in Clusters.

10. *RICINOIDES palustre, fructu hispido, foliis subrotundis, nervosis & asperis. Houst.* Marsh Physic-nut, with a prickly Fruit, and roundish ribbed Leaves, which are rough.

11. *RICINOIDES frutescens, lauri folio, calyce amplissimo viridi. Houst.* Shrubby Physic-nut, with a Bay-leaf, and a large green Flower-cup.

12. *RICINOIDES, ex qua paratur Tournesol Galtherum. Inst. R. H. App.* Physic-nut, from which the *Tournesol* of the French is made.

The seven first-mentioned Sorts were discovered by Father *Plumier* in *America*: the first and second Sorts have been found growing plentifully in the Island of *Jamaica*: the third, fifth, sixth, seventh, eighth, ninth and tenth Sorts, were found in Plenty

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Plenty about *La Vera Cruz*, by the late Dr. *William Houfoun*, from whence he sent their Seeds to *England*: the eleventh Sort was also discovered by the same Gentleman at *Jamaica*. All these Sorts are very tender Plants, being Natives of very warm Countries, and require to be tenderly treated, otherwise they will not grow in this Country. The second, seventh, eighth, ninth and tenth Sorts, are annual; wherefore their Seeds must be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted each into a separate small Pot, filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken Root; and then they should have fresh Air admitted to them, by raising of the Glasses every Day in warm Weather, and they must be frequently watered. In about a Month's time, the Plants will have filled these Pots with their Roots; when they should be shaken out, and put into larger Pots filled with rich Earth, and plunged again into the Hot-bed, provided there is room for the Plants to grow in Height, without being pressed by the Glasses; in which case it will be proper to put them into the Bark-bed in the Stove; for they are too tender to thrive in the open Air in this Country, in the warmest Season of the Year. In *July* these Plants will flower, and their Seeds will ripen in *August* and *September*, soon after which time the Plants will decay.

The other Sorts, which live over the Year, must be raised in the same manner as the annual Kinds; but in Winter they must be plunged into the Bark-bed, in the warmest Stove, and treated after the same manner as hath been directed in the former Vo-

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lumes of the *Gardeners Dictionary*, for those Sorts which are there enumerated.

The twelfth Sort is an annual Plant, and is found wild in the South of *France*, *Spain*, and *Italy*, from which the *Tournefol* is made, that is used for colouring of Wine and Jellies. This is made of the Juice which is lodged between the outer Cover and the Seeds; and, if rubbed on Cloth, at first appeareth of a lively green Colour, but soon changeth to a bluish purple Colour: if these Cloths are put into Water, and afterward wrung, they will colour the Water of a claret Colour. The Rags, thus dy'd, are brought to *England*, and sold in the Druggists Shops, by the Name of *Turnsole*.

This Sort may be propagated by Seeds, which should be sown in the Autumn, soon after they are ripe, on a warm Border of fresh light Earth; and if any of the Plants come up before Winter, (which sometimes happens) they should be sheltered in hard Frost, otherwise they will not live through the Winter. But the Seeds generally remain in the Ground until the Spring, when the Plants will appear; at which time they should be cleaned from Weeds, and where the Plants are too close, they should be thinned, so as to leave them about six Inches asunder; and in very dry Weather, if they are now-and-then refreshed with Water, it will promote their Growth. This is all the Culture they require, except the keeping them constantly clear from Weeds; for the Plants do not thrive well, if they are transplanted; wherefore they should be sown where they are designed to remain. In *July* the Plants will flower, and their Seeds will ripen in *August*, soon after which the Plants will decay.

RICINUS.

RICINUS, Palma Christi, or Oil-feed.

To this *Article* must be added;

1. **RICINUS Indicus**, *fructu rugoso non echinato*. Indian Oil-feed, with a rough Fruit not echinated.

2. **RICINUS Americanus**, *fructu racemoso hispido*. John. Dend. American Oil-feed, with prickly Fruit, growing in a Cluster.

3. **RICINUS Americanus**, *fructu racemoso glabro majore*. Millar. American Oil-feed, with larger smooth Fruit growing in a Cluster.

4. **RICINUS Americanus minor**, *fructu racemoso glabro*. Millar. Smaller American Oil-feed, with smooth Fruit, growing in Clusters.

5. **RICINUS Zeylanicus**, *foliis profundius laciniatis*. Inst. R. H. Oil-feed of Ceylon, with Leaves deeply cut in.

6. **RICINUS humilis**, *foliis subrotundis serratis, & subtus argenteis, flore fructuque conglomeratis*. Houst. Dwarf Oil-feed, with roundish sawed Leaves, which are silvery underneath, and the Flowers and Fruit growing in Bunches.

The Seeds of the first Sort were brought from the *East-Indies*, which came up and flourished in the Physic-garden at *Chelsea*. This Sort grows about the same Height as the common Kind, but the Leaves are not so deeply divided. The Coverings of the Seeds are not prickly, as in most of the other Sorts (somewhat resembling the outer Cover of the Chestnut); but rough, and full of Protuberances.

The Seeds of the second and third Sorts were sent from *Jamaica* by Mr. Robert Millar, who gathered them on the North-side of that Island. These Plants grow in their native Country, to be eighteen or twenty Feet high, and continue two or three Years. They are nearly alike in

their outward Appearance, but differ in the Covering of their Seeds, the second having prickly Covers, and the third being smooth.

The fourth Sort is a low Plant, seldom rising above three Feet high, and differs from the common small Sort, in having smooth Covers to the Seeds: this is less common, and hath not been remarked by any Botanical Writer.

The fifth Sort is a Native of *Ceylon*, from whence the Seeds were brought to *Holland*, and hath been cultivated in many curious Gardens. The Leaves of this Kind are very deeply jagged, in which it chiefly differs from the common Sort.

The sixth Sort was discovered by the late Dr. William Houstoun at *Campechy*, from whence he sent the Seeds to *England*. This is a very low Plant, seldom rising above eight or nine Inches high, and perishes soon after the Seeds are perfected.

All these Sorts are propagated by Seeds, which must be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be treated in the same manner as is directed in the former Volumes of the *Gardeners Dictionary*, for the *Species* there enumerated; with which Management these will thrive very well, except the last Sort, which being a tender Plant, will not perfect Seeds in the open Air in this Country: therefore this Sort should remain in the Hot-bed, and in warm Weather the Glasses should be raised to admit fresh Air to the Plants; and they must be frequently watered, otherwise their Seeds will not be well nourished.

The second and third Sorts here mentioned will not perfect their Seeds in this Climate the first Year, unless they are placed in the Stove, and forwarded early in the Spring; so that

it will be proper to preserve a Plant or two of each Kind through the Winter, in order to obtain good Seeds. But as they are tender Plants, they must be kept in a moderate Temperature of Warmth, otherwise they will not live; therefore the best way is to plunge the Pots into the Bark-bed in the Stove, which will keep them growing all the Winter, and cause them to make large handsome Plants by the following Summer.

RONDELETIA.

The Characters are;

It hath a salver-shaped Flower, consisting of one Leaf, which is tubulous, and rests on the Empalement; which Empalement afterward becomes a roundish coronated Fruit, divided into two Cells, containing many small Seeds.

We know but one Species of this Plant; which is,

RONDELETIA arborescens, tini facie. Plum. Nov. Gen. Tree-like Rondeletia, with the Face of Laurus Tinus.

This Plant was discovered by Father Plumier, in America, who gave it this Name in Honour to *Gulielmus Rondeletius*, a famous Physician of Montpelier.

The Seeds of this Plant were sent to England by Mr. Robert Millar, Surgeon, who collected them on the North-side of the Island of Jamaica, where the Trees grow plentifully, as also in several Parts of the Spanish West-Indies.

* This Plant, being very tender, cannot be preserved in England, unless it is kept in a warm Stove. It is propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they must be transplanted into separate small Pots, and plunged into a moderate Hot-bed of Tanners Bark, where they must be treated in

the same manner as hath been directed for the *Pereskia*; and in Winter, must be placed in the Tan-bed in the Stove, where these Plants will thrive, and in two or three Years will flower; when they will make an agreeable Variety amongst other tender Exotic Plants.

ROSA, The Rose-tree.

To this Article must be added:

1. *ROSA sylvestris Virginiana, flore majore pallido.* The wild Virginian Rose, with a larger pale Flower.

2. *ROSA Americana moschata, flore minore.* The American Musk-rose, with a smaller Flower.

3. *ROSA Americana odoratissima serotina, flore pallido pleno.* The most sweet-scented American late-flowering Rose, with a double Flower.

These three Sorts of Roses grow wild in the Woods of North America, from whence their Seeds have been sent to England, and great Numbers of the Plants have been raised. They are extremely hardy, and may be planted in any Situation, but they love a moist light Soil. They may be propagated by Layers or Suckers, in the same manner as the common Sorts of Roses; and being intermixed with them, they will add to the Variety. There is some Variation in the Colour of the Flowers of these Sorts, which hath arisen from the Seeds which were brought over, as there frequently happens with all the other Sorts of Roses; for of late Years, since some curious Persons have sowed the Seeds of Roses, there have been many new Varieties obtained, some of which are very double, and of beautiful Colours; which Success should encourage others to practise this Method, since there is not a more beautiful Genus of Plants in Nature, than that of the Rose; and the greater Variety there can be obtained, the more will they be

be valued, on account of their several Successions, whereby they are, one or other of the *Species*, in Flower above five Months.

RUBEOLA, Petty-madder.

The *Characters* are;

It hath a funnel-shaped Flower, consisting of one Leaf, which is slightly cut into four Parts at the Brim, resting on the Empalement, which is sometimes double, and sometimes single. This Empalement afterward becomes a Fruit, composed of two naked Seeds.

The *Species* are;

1. RUBEOLA *latiori folio*. *Inst.* R. H. Broad-leaved Petty-madder.

2. RUBEOLA *angustiore folio*. *Inst.* R. H. Narrow-leaved Petty-madder.

3. RUBEOLA *vulgaris quadrifolia levis, floribus purpurascens*. *Inst.* R. H. Common smooth four-leaved Petty-madder, with purplish Flowers, commonly called Squinency-wort.

4. RUBEOLA *Lusitanica aspera, floribus purpurascens*. *Inst.* R. H. Rough Petty-madder of Portugal, with purplish Flowers.

5. RUBEOLA *Cretica saxatilis fruticosa, gallii folio, flore purpureo violaceo*. *Tourn. Cor.* Shrubby rock Petty-madder of Candy, with a Ladies-bedstraw-leaf, and a violet purple Flower.

6. RUBEOLA *Cretica saxatilis frutescens, flore flavescens*. *Tourn. Cor.* Shrubby rock Petty-madder of Candy, with a yellowish Flower.

7. RUBEOLA *Cretica foetidissima frutescens myrtifolia, flore magno saepe-rubente*. *Tourn. Cor.* The most stinking shrubby Petty-madder of Candy, with a myrtle Leaf, and a large pale red Flower.

8. RUBEOLA *orientalis foetida fruticosa serpyllifolia, flore parvo saepe-rubente*. *Tourn. Cor.* Shrubby stinking Eastern Petty-madder, with a Mother-of-thyme-leaf, and a small pale red Flower.

9. RUBEOLA *orientalis, foliis gallii, flore multiplici ex viridi flavescens*. *Tourn. Cor.* Eastern Petty-madder, with many greenish yellow Flowers.

The first, second, fourth and ninth Sorts, are annual Plants, which decay soon after they have perfected their Seeds. These are preserved in the Gardens of those Persons who are curious in Botany, for the sake of Variety. They are very hardy Plants, which require no other Care than to clear them from Weeds: for if they are permitted to scatter their Seeds, the Plants will come up, and maintain their Place, if they are not overborne with larger Plants. The Seeds of these Plants may be sown either in Spring or Autumn, in the Places where they are to remain, which may be in almost any Soil, but they love an open Situation.

The third Sort grows wild on chalky Hills in divers Parts of England, where the Branches trail on the Ground, and produce Tufts of purplish Flowers from the Joints where the Leaves are set on, which open in June, and the Seeds are ripe in August; but the Roots abide many Years. This Plant is esteemed efficacious in the Cure of Quinsys, either taken inwardly, or outwardly applied.

The fifth, sixth, seventh and eighth Sorts, were discovered by Dr. Tournefort in the Levant. These are abiding Plants, which become shrubby, and by their different Appearances make an agreeable Variety in a Garden. They may be propagated by sowing of their Seeds on a Bed of fresh undunged Soil, in the Spring; and when the Plants come up, they must be kept clear from Weeds, and in very dry Weather they should be refreshed with Water: but when the Plants are about three or four Inches

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high, they should be transplanted, some of each Sort, into Pots, that they may be sheltered under a Hot-bed Frame in Winter ; and the others intodry warm Borders of poor Earth: for in such Places where the Plants grow slowly, they will live through the Winter, better than when they are planted in a rich Soil.

RUBUS, The Bramble.

To this Article must be added ;

1. RUBUS *vulgaris, spinis carens*. H. R. Par. Common Bramble, without Spines.

2. RUBUS *spinosus, foliis & flore eleganter laciniatis*. Inst. R. H. Prickly Bramble, with Leaves and Flowers elegantly jagged.

3. RUBUS *flore albo pleno*. H. R. Par. The Bramble with double white Flowers.

4. RUBUS *non spinosus, fructu nigro majore, Polonicus*. Barr. Icon. Poland Bramble without Thorns, and a larger black Fruit.

The first Sort is in all respects like common Bramble, excepting in this Particular, that there are no Thorns on the Branches or Leaves of this Sort.

The second Sort differs from the common Bramble, in having the Leaves and Flowers curiously jagged.

The third Sort produces large Spikes of Flowers, which are very large and double, so that they make a fine Appearance, being almost as large and double as Roses. This merits a Place in every good Garden, because it may be planted in any abject Part of the Garden, under Trees in Wilderness Quarters, where it will thrive and flower as well as when planted in a more open Situation.

The fourth Sort is not very common in England, but is a Native of Poland. This produces much larger Fruit than the common Bramble ;

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wherefore it is preserved in the Gardens of some curious Persons for the sake of Variety.

All the Sorts of Bramble are easily propagated by laying down of Shoots, which in one Year will be sufficiently rooted to transplant ; after which they may be cut off from the old Plants, and planted where they are designed to remain ; which should be in Wilderness Quarters, or other abject Parts of the Garden, where they may have room to spread, without incommoding other Plants.

RUELLIA.

The Characters are ;

It hath a funnel-shaped Flower, consisting of one Leaf, which is cut into several Parts at the Brim, from whose Emplacement arises the Pointal, which is fixed like a Nail in the Bottom of the Flower, and afterward becomes a membranaceous Pod, which opens into several Parts, and is filled with small Seeds.

The Species are ;

1. RUELLIA *Americana humilis, asphodeli radice*. Plum. Nov. Gen. Dwarf American Ruellia, with an asphodel Root.

2. RUELLIA *Caroliniana, foliis oblongis angustis, flore purpureo*. Houst. Carolina Ruellia, with narrow oblong Leaves, and a purple Flower.

3. RUELLIA *Americana humilis, parvo flore caeruleo, capsulis teretibus*. Houst. Dwarf American Ruellia, with a small blue Flower, and a taper Pod.

The first Sort was discovered by Father Plumier, in America, who gave this Name to the Genus, in Honour of Dr. Ruellius, who was a very learned Person in Natural History, and lived about two hundred Years past.

The second Sort grows plentifully in South Carolina, from whence it was brought into the English Gardens.

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dens. This Sort grows much taller than the other two.

The third Sort was discovered by the late Dr. *William Houstoun* in *Jamaica*, who sent the Seeds into *England*. The Flowers of this Kind are much smaller than those of the other Sorts, and are of short Duration, seldom continuing above one Day.

These Plants are propagated by Seeds, which must be sown early in the Spring in Pots filled with light rich Earth, and plunged into a moderate Hot-bed; and when the Plants come up, they must be transplanted each into a separate small Pot, filled with rich Earth, and plunged into a Hot-bed of Tanners Bark, where they must be shaded from the Sun, until they have taken new Root; after which they must have fresh Air admitted to them every Day in warm Weather, and be constantly watered three or four times a Week during the Summer Season. If the Plants thrive well, those of the first and third Sort will produce Flowers the *July* following, and will perfect their Seeds in *August*; but the Roots will continue, provided they are plunged into the Bark-bed in the Stove, and kept in a moderate Temperature of Heat.

The second Sort, which rises much higher than either of the other, will require to be shifted into larger Pots, by the Beginning of *June*; and then they should be removed into the Stove or Glass-case, where they may have a larger Share of Air; otherwise they will draw up very weak, which will prevent their flowering. This Sort dies to the Root every Winter; but if the Pots are placed in a warm Stove, their Roots will live, and put out again the following Spring; by which Method they may be continued several Years. This Sort will

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ripen Seeds very well, provided the Plants are sheltered when they are in Flower.

The first Sort is by much the most beautiful Plant, the Flowers being four times as large as those of either of the other Sorts, and are of a fine blue Colour; so that it makes a fine Appearance when it flowers; and as the Plants are small, they may be kept in a little Compass, and are as well worth preserving, as most tender Exotic Plants. When this Plant is shifted, (which should be the Beginning of *April*, before the new Leaves are put out) great Care should be taken, that the Roots are not broken or bruised; for they consist of many thick Tubers, and if these are injured, the Plant is frequently destroyed.

RUYSCHIANA.

The Characters are;

It hath a labiated Flower consisting of one Leaf, whose Upper-lip (or Crest) is divided into two Parts; but the Beard is cut into three Segments, the middle Segment being divided into two Parts, and is twisted like a Screw: out of the Empalement arises the Pointal, fixed like a Nail in the hinder Part of the Flower, attended by four Embryo's, which afterwards become so many Seeds inclosed in the Empalement.

We have but one Species of this Plant; which is,

RUYSCHIANA flore cœruleo magna Boerb. Ind. alt. Ruyschiana with a large blue Flower.

This Name was given to this Plant by the learned Dr. *Boerhaave* Professor of Botany at *Leyden*, in Honour of Dr. *Ruysch*, who was Professor of Anatomy and Botany at *Amsterdam*. It was by some Writers in Botany ranged amongst the *Hypops*; by others it was made a *Ground-pine*, and by some a *Self-heal*;

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heal ; to neither of which it exactly agreed : which occasioned Dr. *Boerhaave* to constitute a new Genus of it by this Name.

This is a perennial Plant, which dies to the Root in Autumn, and rises again the following Spring : it commonly grows about two Feet high, and has long narrow Leaves, somewhat resembling those of *Rosemary* : on the Tops of the Stalk the Flowers are produced in a close thick Spike, growing in Whorles round the Stalks, which are of a fine blue Colour, and make a very pretty Appearance during their Continuance in Beauty ; which in a cool Season is sometimes six Weeks, beginning in *May*, and lasting till *July*.

It is propagated by Seed, which should be sown in the middle of *March*, in a Bed of fresh light Earth, on an open Exposure ; and in about five Weeks after, the Plants will appear ; when they should be carefully cleared from Weeds, and if the Season should prove dry, must be refreshed now-and-then with Water, which will greatly promote their Growth. When the Plants are about two Inches high, they should be carefully transplanted into a Bed or Border of fresh light undunged Earth, observing to shade them from the Sun until they have taken Root, as also to refresh them frequently with Water, until they are well established in this Bed ; after which time they will require no farther Care, but to keep them constantly clear from Weeds till *Michaelmas*, when they are to be removed into the Places where they are designed to remain for Continuance.

When the Plants are first removed from the Seed-bed into the Nursery-bed, they should be planted about six Inches asunder every way, which will be sufficient room for them the

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first Season : and this will admit of the Hough to come between the Plants to destroy the Weeds, which is by much a better Method than the pulling out of the Weeds by Hand, and is much sooner performed. For as the Hough stirs the Ground between the Plants, it not only cuts down the Weeds, which were up and visible, but also destroys all those whose Seeds were sprouted, and would have soon after appeared ; so that one Houghing, if well performed, and in dry Weather, will more effectually destroy the Weeds, than two Hand-weedings would do, were it performed ever so carefully. Besides, the stirring of the Ground is of great Service to the Plants.

At *Michaelmas*, when the Plants are transplanted for a Continuance, they should be carefully taken up with Balls of Earth to their Roots, and must be planted in the middle of the Borders, in fresh light Earth, intermixing them with other hardy Plants of the same Growth, where they will make a pretty Appearance, when they are in Flower, and will continue three or four Years ; and in some poor stony Soils I have known the Roots live six or seven Years ; but these did not produce so large Spikes of Flowers, as those which were younger and more vigorous Plants.

It will be proper to have some of these Plants in Pots, which, in case of a severe Winter, may be sheltered under a Frame, for fear those Plants which are exposed, should be destroyed ; and these in Pots, if they are duly supplied with Water in dry Weather, will flower very strong ; wherefore they may be placed amongst other Plants to decorate Courts, &c. where they will have a good Effect.

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But as these Plants do not continue many Years, it will be proper to raise a Supply of young Plants to succeed them; for the old Plants will produce Seeds plentifully, which are ripe in *August*; when they should be gathered in dry Weather, and kept in a warm dry Room, till the time for sowing them.

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SALICARIA, Willow-wort.

To this *Article* must be added;

1. SALICARIA *hyssopi folio latiore*. *Inst. R. H.* Broad hyssop-leaved Willow-wort, or Hedge-hyssop.

2. SALICARIA *hyssopi folio angustiore*. *Inst. R. H.* Narrow hyssop-leaved Willow-wort, or Grass-poly.

3. SALICARIA *Lusitanica, angustiore folio*. *Inst. R. H.* Portugal Willow-wort, with a narrow Leaf.

4. SALICARIA *Hispanica, hyssopi folio, floribus oblongis, saturate caeruleis*. *Inst. R. H.* Spanish Willow-wort, with a Hyssop-leaf, and oblong deep blue Flowers.

5. SALICARIA *minima Lusitanica, nummularia folio*. *Inst. R. H.* The least Portugal Willow-wort, with a Money-wort-leaf.

6. SALICARIA *orientalis, salicis folio acutissimo & glabro*. *Tourn. Cor.* Eastern Willow-wort, with a sharp-pointed smooth Willow-leaf.

7. SALICARIA *Cretica, punicea folio*. *Tourn. Cor.* Candy Willow-wort, with a Pomegranate-leaf.

The two first Sorts are found wild in *England*, on moist Soils, where the Water stands in Winter; but they are pretty rare near *London*. These are seldom preserved in Gardens, but are here mentioned to in-

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roduce the next Sort, which is a very beautiful Plant, and deserves a Place in every curious Garden, for its long Continuance in Flower. This Sort is a Native of *Portugal*, but is a tolerable hardy Plant, and will endure the Cold of our ordinary Winters in the open Air; but in very severe Frosts, it is sometimes destroyed; so that some of this Kind may be planted in Pots, which may be sheltered under a common Frame in Winter, where they should have as much free Air as possible in mild Weather; for they only require to be protected from very hard Frosts. In Summer they may be placed abroad with other flowering Plants; but in dry Weather they must be duly watered, otherwise they will not flower strong, nor continue so long in Beauty. These Flowers are produced from the Wings of the Leaves, beginning at the Bottom of the Stalks near the Root, and are continued all the way up to the Top of the Stalks, which are about two Feet in Length; for this Sort seldom rises any higher: the Flowers are pretty large, and of a bright purple Colour. This Plant begins to flower the Beginning of *June*, and continues till *August*.

As this Sort very rarely produces ripe Seeds in *England*, it must be propagated by parting of the Roots, or by laying down of the Branches, which will take Root in a few Months (provided they are constantly watered in dry Weather); and may then be taken from the old Plants, and planted into Pots, that they may be sheltered in Winter; and the Spring following, some of them may be shaken out of the Pots, and planted into a Border, where they may have the Morning Sun; and in dry Weather, if they are watered constantly, they will flower

flower very well, and make a fine Appearance.

The fourth Sort is also a very beautiful Plant, and well deserves a Place in every good Garden. This grows about the same Height with the former, and may be interspersed with it in the Borders of the Flower-garden; as may also the fifth and seventh Sorts, for Variety, though they are not near so beautiful as either of the former Sorts. These may be treated in the same manner as hath been directed for the third Sort; with which Management they will thrive very well.

The sixth Sort grows much taller than either of the other; wherefore it should be placed amongst larger Plants. This is very hardy, and may be propagated either by Seeds, or by parting of the Roots, which is the surest way, because the Seeds do not ripen every Year in this Climate. The best Time to part the Roots is in Autumn, that they may be well fixed in the Ground before the Spring; because those which are parted in the Spring, seldom flower very strong, especially if the Season proves dry. This Sort may be intermixed with the two large Kinds mentioned in the former Volumes of the *Gardeners Dictionary*, and will grow in almost any Situation, provided they are watered in dry Weather.

SALICORNIA, Jointed Glasswort, or Saltwort.

The Characters are;

It hath an apetalous Flower, wanting the Empalement; for the Stamina (or Chives) and the Embryo's grow on the extreme Part of the Leaves. These Embryo's afterward become Pods or Bladders, which for the most part contain one Seed.

The Species are;

1. **SALICORNIA geniculata semper-**

virens. Tourn. Cor. Jointed ever-green Glasswort.

2. **SALICORNIA geniculata annua. Tourn. Cor.** Annual Jointed Glasswort.

These Plants grow on the Sea-coast in many Parts of *Europe*, and upon the Shores in several Places in *England*, which are washed every Tide with the Salt-water; but are rarely planted in Gardens, because it is very difficult to make them grow in any other Situation, than in Salt-marshes, and on the Shores, where the Salt-water frequently flows. Of these Plants there seem to be two or three Varieties, which appear remarkably different, but are not supposed to be distinct Species.

The Inhabitants near the Sea-coast, where these Plants grow, cut them up toward the latter End of Summer, when they are fully grown; and after having dried them in the Sun, they burn them for their Ashes, which are used in making of Glass and Soap. These Herbs are, by the Country People, called Kelp; and are promiscuously gathered for Use.

From the Ashes of these Plants is extracted the Salt, called Sal Kali, or Alkali, which is much used by the Chymists.

The Manner of gathering and burning of these Herbs is already mentioned under the Article of *Kali*; wherefore I shall not repeat it.

In some Parts of *England*, these Herbs are gathered and pickled for Samphire, though they are very different therefrom.

SAMOLOIDES.

The Characters are;

It hath a Flower consisting of one Leaf, which is cut into four Parts almost to the Bottom, and expands in form of a Star. In the Centre of the Flower arises the Pointal, which is surrounded at Bottom by a Number

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of slender Threads, which are expanded, and accompanied by four Chives. This Pointal afterward becomes an oblong Seed-vessel, which is bivalve, and contains flat Seeds.

We know but one Species of this Plant; which is,

SAMOLOIDES quæ capraria Curasavica, Cabritta vulgo dicta. H. A. Boerb. Ind. alt. West-Indian Thea, vulgo.

This Plant is very common in Jamaica, and several other Places in the West-Indies, where it hath been by some People dried and used as Thea, from whence it had the Name. In Curasao the Goats feed on this Plant, from whence the Inhabitants gave it the Name of Cabritta. But at present it is not used by any of the Inhabitants of America, so far as I can learn.

This Plant is preserved by the Curious in Botany, for Variety-sake; but as there is no great Beauty in its Flowers, it is seldom preserved in other Gardens. It is propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are about two Inches high, they should be transplanted on another Hot-bed, about four or five Inches asunder, where they should have a large Share of Air in warm Weather, and must be frequently watered. In this Bed the Plants may remain until they have obtained a large Share of Strength, when they should be transplanted into Pots, and plunged into a moderate Hot-bed to promote their taking Root; and after they are well settled in the Pots, they may be placed in the Stove, or in an airy Glass-case, where they may be sheltered from Cold: but they must have a large Share of fresh Air in warm Weather; for if they are exposed abroad, they will

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not thrive, nor perfect their Seeds. In June these Plants will begin to flower, and in August they will perfect their Seeds, and the Plants will live through the Winter, provided they are placed in a warm Stove; but as they produce ripe Seeds the first Year, it is not worth incumbering the Stove with them in Winter.

SAMOLUS, Round-leav'd Water Pimpernel.

The Characters are;

It hath a wheel-shaped Flower, consisting of one Leaf, which is cut into several Segments; the Pointal arises from the Empalement, and is fixed like a Nail in the Centre of the Flower; which uniting with the Empalement, is turned into a Fruit or Pod, opening at the Top, and inclosing many small Seeds.

We have but one Species of this Plant; which is,

SAMOLUS Valerandi. J. B. Round-leaved Water Pimpernel.

This Plant grows wild in swampy Places, where the Water usually stands in Winter; and is seldom preserved in Gardens: it is an annual Plant, which flowers in June, and the Seeds are ripe in August; at which time, whoever hath a mind to cultivate this Plant, should sow the Seeds on a moist Soil, where the Plants will come up, and require no farther Care, but to keep them clear from Weeds.

SAPINDUS, The Soap-berry.

The Characters are;

It hath a Flower, which for the most part is composed of four Leaves, expanding in form of a Rose: from whose four-leaved Empalement arises the Pointal, which afterward becomes a spherical Fruit, inclosing a Nut of the same Form.

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We have but one *Species* of this Plant ; which is,

SAPINDUS foliis costæ alatæ innaſcentibus. *Inst. R. H.* The Soap-berry or Soap Apple-tree.

This Tree is very common in *Jamaica*, *Barbadoes*, and most other Places in the *West-Indies*, where it rises to the Height of thirty Feet or more ; but in *Europe* it is preserved by those Persons who are curious in cultivating Exotic Plants, for the singular Structure of the Leaves, which are very long and narrow, having Borders on each Side, which at about every two Inches have Pinnæ or Wings, opposite to each other, and terminated by an odd one. The Flowers are produced at the Ends of the Branches, which are small and white, growing in Clusters. These are succeeded by spherical brown Berries, about the Size of Cherries, which have very little Pulp, but a brown Skin, covering the Nut, which is round, black and hard. These Nuts were formerly brought into *England* to make Buttons, for which purpose they were very proper, because they never crack. The Skin which surrounds the Nut, will lather in the manner of Soap, and is used in *America* to wash Linen, tho' many People say it will burn it, when it is often used.

This Plant is propagated by Seeds (which must be obtained from the Countries, where they naturally grow ; for they do not produce Fruit in *Europe*) : these must be put into small Pots, filled with fresh rich Earth, and plunged into a Hot-bed of Tanners Bark. These Pots must be frequently watered, otherwise the Berries, whose outer Cover is very hard, will not vegetate. In a Month or five Weeks the Plants will begin to appear, when the Glasses of the Hot-bed should be

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raised every Day in warm Weather, to admit fresh Air to the Plants ; but if the Nights are cold, the Glasses should be covered with Mats every Evening, as soon as the Sun is gone off from shining on the Bed ; and the Plants must be frequently refreshed with Water. In three Weeks or a Month after the Plants appear, they will be fit to transplant ; when they must be shaken out of the Pots, and carefully parted, so as not to injure their Roots, and each planted into a separate small Pot, filled with light rich Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun every Day, until they have taken new Root ; after which time they must have free Air admitted to them every Day, when the Weather is warm ; and the Plants will require to be frequently watered.

After the Plants are well rooted, they will make great Progress, so as to fill these Pots with their Roots in a few Weeks time : therefore they must then be shifted into larger Pots ; and if the Plants have grown so tall as to reach the Glasses of the Hot-bed, or be in Danger of having their Leaves scorched by the Sun through the Glasses, they should be removed into the Stove, and plunged into the Bark-bed ; where if they are duly watered in warm Weather, they will make great Progress, and by the Beginning of *August* will have Leaves sixteen or eighteen Inches long. The first Leaves of these Plants are very long and narrow, having no Pinnæ or Wings to them ; but as the Plants advance, they put out first one Wing, then two, and afterwards four ; and in old Plants, they have sometimes six or eight Wings, with an odd Wing at the Top.

These Plants are so tender as not to live in the open Air in *England*,

even at the warmest Season of the Year: therefore they should be kept constantly in the Stove plunged into the Bark-bed, where they must be kept very warm in Winter; but in Summer, they must have a large Share of fresh Air in warm Weather, with which they will thrive very fast, and may be expected to flower, tho' for the singular Form of the Leaves, they deserve a Place in the Stove.

SAPOTA, The Mammee Sapota.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed in a circular Order; from whose Empalement arises the Pointal, which afterward becomes a large oval soft fleshy Fruit, inclosing an oblong pointed Stone or Fruit, which is finely polished, having a rough Fissure on one of the Edges, of an Ash-colour.

The Species are;

1. SAPOTA fructu turbinato minori. Plum. Nov. Gen. Sapota with a lesser Fruit, shaped like a Top.

2. SAPOTA fructu ovato majori. Plum. Nov. Gen. Sapota with a larger oval Fruit.

The Name of Sapota is what these Fruit are called by the Natives of America; to which some add the Appellation of Mammee. But there is no other Name given to these Fruits by the English, since they have settled in the West-Indies; so far as I can learn.

The first of these Trees is common about Panama, and some other Places in the Spanish West-Indies; but is not to be found in any of the English Settlements in America. The second Sort is very common in Jamaica, Barbadoes, and most of the Islands in the West-Indies, where the Trees are planted in Gardens for their Fruit, which is by many Persons greatly esteemed.

These Trees grow in America to

the Height of thirty-five or forty Feet, having a strait Trunk, covered with an ash-coloured Bark. The Branches are produced on every Side, so as to form a regular Head: these are beset with Leaves, which are a Foot in Length, and near three Inches broad. The Flowers, which are produced from the Branches, are of a cream Colour; when these fall away, they are succeeded by large oval or top-shaped Fruit, which are covered with a brownish Skin, under which is a thick Pulp of a russet Colour, very luscious, called natural Marmalade, from its Likeness to Marmalade of Quinces.

As these Trees are Natives of very warm Countries, they cannot be preserved in England, unless they are placed in the warmest Stoves, and managed with great Care. They are propagated by planting of the Stones; but as these will not keep good long out of the Ground, the surest Method to obtain these Plants, is to have the Stones planted in Tubs of Earth, as soon as they are taken out of the Fruit, and these Tubs placed in a Situation where they may have the Morning Sun, and kept duly watered. When the Plants come up, they must be secured from Vermin, and kept clear from Weeds; but should remain in the Country, till they are about a Foot high, when they may be shipped for England; but they should be brought over in the Summer Season, and, if possible, time enough for the Plants to make good Roots after they arrive. During their Passage they must have some Water, while they continue in a warm Climate; but as they come into colder Weather, they should have very little Moisture: and they must be secured from Salt-water, which will soon destroy the Plants, if it gets at them.

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When these Plants arrive in *England*, they should be carefully taken out of the Tubs, preserving some Earth to their Roots, and planted into Pots filled with fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing, if the Weather is hot, to shade the Glasses with Mats every Day, to screen the Plants from the Sun, until they have taken new Root, and not to water them too much at first, especially if the Earth in which they come over is moist; because too much Water is very injurious to the Plants, before they are well rooted; but afterward they must have Plenty of Water in warm Weather, and a large Share of Air admitted to them; otherwise their Leaves will be infested with Insects, and become foul; in which case they must be washed with a Sponge, to clean them, without which the Plants will not thrive.

In the Winter these Plants must be placed in the warmest Stove, and in cold Weather they should have but little Water given to them, tho' they must be frequently refreshed, when the Earth is dry; especially, if they retain their Leaves all the Winter, they will require a greater Share of Water, than when they drop their Leaves; so that this must be done with Discretion, according to the State in which the Plants are. As these Plants grow in Magnitude, they should be shifted into Pots of a larger Size; but they must not be over-potted, for that will infallibly destroy them.

SARRACENA, The Side-saddle-flower.

The Characters are;

It hath a Flower, consisting of several Leaves, which are placed circularly, and expand in form of a Rose, and resting in a many-leaved Empalement; from the middle arises

the Pointal, which is membranaceous, and shaped like a Hood, and afterward becomes a roundish Fruit divided into five Cells, which contain oblong Seeds.

We have but one Species of this Plant; which is,

SARRACENA *Canadensis*, foliis cavis & auritis. *Inst. R. H. Canady* Sarracena, with hollow eared Leaves.

This strange Plant is a Native of *New England*, *Virginia*, and several Places in *North America*; where it grows on Bogs, and such Places where the Waters usually stand in Winter. The Leaves of this Plant arise from the Root every Spring, being eight or nine in Number, which are small at the Bottom, but swell larger toward the Top, and are hollow like a Pitcher; having a sort of an Appendage at the Top, somewhat resembling a Flap, so that in these Leaves there is commonly a large Quantity of Water contained. Between the Leaves arises the Flower-stem, having several rosaceous Flowers growing on the Top, which are succeeded by roundish Fruit.

The Name was given to this Plant by Dr. *Tournefort*, in Honour of Dr. *Sarrazin* a curious Botanist, who sent the Plant from *Canady* to Dr. *Tournefort* at *Paris*.

As this Plant grows on Bogs, it is very difficult to cultivate in *England*; for although the Winters are much more severe in the Places of their natural Growth, than they generally are in *England*, yet their Summers being much warmer, they thrive much better, and produce their Flowers and Fruit annually; whereas it is with great Difficulty they are kept alive for a Year or two in *England*; and they have not yet flowered in this Country, that I could ever learn. By the Appearance of some Plants, which I received from *New England*, there

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there seem to be two Sorts of this Plant, one of which is much larger than the other; but as I never had an Opportunity of seeing these Plants in Flower, I cannot determine any thing with Certainty about them.

The only Method to obtain these Plants is to procure them from the Places of their Growth, and to have them taken up with large Balls of Earth to their Roots, and planted in Tubs of Earth, which must be constantly watered during their Passage, otherwise they will decay before they arrive: and there is little Probability of raising these Plants from Seeds, so that young Plants should be taken up to bring over, which are more likely to stand here, than those which have flowered two or three times. When the Plants are brought over, they should be planted into pretty large Pots, which should be filled with soft spongy Earth, mixed with rotten Wood, Moss and Turf, which is very like the natural Soil in which they grow. These Pots must be constantly supplied with Water, and placed in a shady Situation in Summer; but in the Winter they must be covered with Moss, or sheltered under a Frame; otherwise they will not live in this Country, though they have much more severe Frost in the Countries where they naturally grow; but there they are covered with Snow, which may be a great Protection to them. With this Management I have kept some of these Plants alive two Years, but they made very little Progress.

SAURURUS, Lizards-tail.

The Characters are;

It hath an apetalous Flower, consisting of two Chives, which open two ways, and are full of very small Powder (or Farina). The Embryo rests between the two Chives,

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which afterward becomes an oval soft Fruit, inclosing a single Seed. To these Notes must be added, The Flowers and Fruit are fixed to one Axis, so as to resemble the Tail of a Lizard.

The Species are;

1. SAURURUS *racemosus*, seu *botryites major*. Plum. Nov. Gen. Greater branching Lizards-tail.

2. SAURURUS *racemosus*, seu *botryites minor*. Plum. Nov. Gen. Lesser branching Lizards-tail.

3. SAURURUS *cauda adunca*. Plum. Nov. Gen. Lizards-tail with a crooked Tail.

4. SAURURUS *foliis plantagineis*, *cauda breviori*. Plum. Nov. Gen. Lizards-tail with plantain Leaves, and a shorter Tail.

5. SAURURUS *botryites major*, *foliis plantagineis*. Plum. Nov. Gen. Greater clustered Lizards-tail, with plantain Leaves.

6. SAURURUS *foliis amplis rotundis & umbilicatis*. Plum. Nov. Gen. Lizards-tail with large round umbilicated Leaves.

7. SAURURUS *foliis amplis cordatis, non umbilicatis*. Plum. Nov. Gen. Lizards-tail with large heart-shaped Leaves, not umbilicated.

8. SAURURUS *procumbens minor botryites*, *folio carnosso cordato*. Plum. Nov. Gen. Smaller creeping clustered Lizards-tail, with a fleshy heart-shaped Leaf.

9. SAURURUS *alius humilis*, *folio carnosso subrotundo*. Plum. Nov. Gen. Low Lizards-tail, with a roundish fleshy Leaf.

10. SAURURUS *repens*, *folio orbiculari, nummulariæ facie*. Plum. Nov. Gen. Creeping Lizards-tail, with a round Leaf, having the Appearance of Moneywort.

11. SAURURUS *repens triphyllus*, *folio rotundo*. Plum. Nov. Gen. Creep-

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Creeping three-leaved Lizards-tail, with a round Leaf.

12. SAURURUS *cauliculis maculosis, repens*. Plum. Nov. Gen. Creeping Lizards-tail, with a spotted Stalk.

13. SAURURUS *frutescens, laurocerasti folio, fructu brevioris & crassioris*. Houst. Shrubby Lizards-tail, with a Laurel-leaf, and a shorter and thicker Fruit.

14. SAURURUS *arborescens latifolia villosa, fructu gracili*. Houst. Tree-like Lizards-tail, with a broad hairy Leaf, and a slender Fruit.

The seven Sorts first-mentioned grow to be shrubby, and rise to the Height of four or five Feet, having Leaves placed alternately on their Branches. The Iulus comes out from the Wings of the Leaves, which is shaped like a Lizard's Tail, from whence they had their Names. By some they are called long Pepper, from the Resemblance their Iuli bear to the long Pepper: but the Fruit of these are not used, nor have they the Taste of Pepper. These Sorts were discovered to grow in *Jamaica*, by the late Dr. *Houstoun*; and some of them are described by Sir *Hans Sloane* in his Natural History of *Jamaica*.

The eighth, ninth and tenth Sorts, are Plants of humbler Growth: these trail on the Ground, and emit Roots from their Joints, which fasten themselves into the Earth where-ever it is loose, by which Method they spread to a great Distance. The Leaves and Stalks of the ninth Sort are very thick and succulent, and remain always green.

The eleventh and twelfth Sorts are creeping Plants, which fasten themselves to Trees; by which means they rise to the Height of eight or ten Feet, fasten their Roots into the Bark of the Trees, and receive Part

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of their Nourishment from thence.

All these twelve Sorts were discovered by Father *Plumier* in the *West-Indies*, who has figured and described them in his History of *American* Plants: but seven of them were before described by Sir *Hans Sloane*, in his Natural History of *Jamaica*.

The two last Sorts were discovered by the late Dr. *Houstoun* at *La Vera Cruz*, from whence he sent Samples of them into *England*. These two Sorts grow much larger than either of those before-mentioned.

Some of these Plants are called by the Inhabitants of *Jamaica*, *Spanish Elder*, from their being jointed, and their Branches having a great deal of Pith in them. Others of them, especially those which have Leaves shaped like a Heart, are called *Santa Maria* Leaves.

These Plants most of them grow in moist shady Places, in the warmest Parts of *America*, where many of them root into the decayed Trunks of Trees, and rotten Wood, (especially those which trail) and thereby they propagate faster than by Seeds: for as they emit Roots at almost every Joint, each of these will make a separate Plant.

But as these Plants are too tender to bear the open Air in this Climate, they must be preserved in a Stove, where the Air may be kept to a moderate Temperature for Heat; and if they are placed in the Bark-bed, and their Branches permitted to trail on the Surface of the Bark, the Plants will send forth Roots at every Joint, and fasten themselves strongly into the Bark; by which means they will thrive exceeding fast, and produce their Flowers and Fruit.

The Seeds of these Plants, when brought from abroad, seldom succeed in *England*; so that the most proper

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proper Method to obtain the Plants, is to have some of their Cuttings planted into Boxes of Earth, in the Countries where they naturally grow; and when they are well rooted, they may be sent over to *England*, with Directions given to the Persons to whose Care they are intrusted, not to let them have too much Water, (especially when they come into a cool Climate) because Moisture then will be very prejudicial to them. They must also be carefully guarded against the Salt-water, which will infallibly destroy them, if it be suffered to come to them. When the Plants arrive in *England*, they should be carefully taken out of the Boxes, and each planted into a separate small Pot, filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun at first, until they have taken Root; after which time they should have fresh Air admitted to them, in proportion to the Warmth of the Season: but in Winter they must be kept pretty warm, otherwise they will not live in this Country.

The surest Method to make these Plants thrive in *England*, is, to plunge the Pots into the Bark-bed in the Stove, and to suffer the Branches of the creeping Kinds to trail on the Surface of the Bed, where they will strike Roots into the Tan, and will thrive exceedingly. These Plants merit a Place in every Collection of Plants, for their remarkable Leaves, and the singular Structure of their Branches, as also for the Oddness of their Flowers and Fruit, which are, for the most part, produced from the Wings of the Leaves.

SAXIFRAGA, Saxifrage.

To this Article must be added;

1. SAXIFRAGA *ad folia bulbos*

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gerens. C. B. P. Saxifrage bearing Bulbs at the Wings of the Leaves.

2. SAXIFRAGA *verna annua humilior. Inst. R. H.* Dwarf spring annual Saxifrage, commonly called Rue-leaved Whitlow-grass.

3. SAXIFRAGA *muscosa, trifida folio. Inst. R. H.* Mossy Saxifrage, with a trifid Leaf, commonly called mountain Sengreen, or Ladies Cushion.

4. SAXIFRAGA *tridactylites Alpina, pallide lutca. Inst. R. H.* Mountain Saxifrage, of a pale yellow Colour, with a Leaf cut into three Segments.

5. SAXIFRAGA *tridactylites Alpina minor & villosa. Inst. R. H.* Smaller hairy Saxifrage of the Alps, with a Leaf cut into three Segments.

6. SAXIFRAGA *alba petraea Ponce. Inst. R. H.* White Rock Saxifrage.

7. SAXIFRAGA *fedi folio, Pyrenaica serrata. Inst. R. H.* Pyrenean Saxifrage, with a sawed Houseleek-leaf.

8. SAXIFRAGA *foliis subrotundis serratis. Inst. R. H.* Saxifrage with roundish sawed Leaves.

9. SAXIFRAGA *Alpina, fedi foliis crenatis asperis. Inst. R. H.* Saxifrage of the Alps, with rough notched Leaves like Houseleek.

10. SAXIFRAGA *foliis oblongo-rotundis dentatis, floribus compactis. Raii Syn. Ed. 3.* Saxifrage with an oblong roundish indented Leaf, and the Flowers growing in close Bunches.

11. SAXIFRAGA *montana pyramidata, folio longiore. Inst. R. H.* Mountain pyramidal Saxifrage, with a long Leaf.

12. SAXIFRAGA *Pyrenaica lutea minima, fedi foliis densissime congestis. Inst. R. H.* The least yellow Pyrenean Saxifrage, with Houseleek-leaves, growing very close together.

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13. *SAXIFRAGA Alpina minima, foliis caespitis, deorsum incurvis.* *Inst. R. H.* The least Saxifrage of the Alps, with sky-coloured Leaves, which bend downward.

14. *SAXIFRAGA Alpina lutea, sedifolio.* *Inst. R. H.* Yellow Saxifrage of the Alps, with a Houseleek-leaf.

15. *SAXIFRAGA Pyrenaica tridactylites latifolia.* *Inst. R. H.* Pyrenean Saxifrage, with broad Leaves, cut into three Segments.

16. *SAXIFRAGA Cantabrica latifolia tridactylites rigidior.* *Inst. R. H.* Broad stiff-leaved Saxifrage of Biscay, with Leaves cut into three Segments.

17. *SAXIFRAGA tridactylites Pyrenaica, pallide lutea, minima.* *Inst. R. H.* The least pale yellow Saxifrage of the Pyrenees, with Leaves cut into three Segments.

18. *SAXIFRAGA Pyrenaica, foliis partim integris, partim trifidis.* *Inst. R. H.* Pyrenean Saxifrage, with Leaves partly intire, and partly cut into three Segments.

19. *SAXIFRAGA Pyrenaica minima lutea, musco similis.* *Inst. R. H.* The least yellow Saxifrage of the Pyrenean Mountains, resembling Moss.

20. *SAXIFRAGA annua Cretica minima,hederaceo folio.* *Tourn. Cor.* The least annual Saxifrage of Candia, with an Ivy-leaf.

21. *SAXIFRAGA Pennsylvania, floribus muscosis.* *Hort. Elth.* Saxifrage of Pennsylvania, with greenish Flowers, growing branchy.

The first Sort here mentioned is a Variety of the common white Saxifrage, from which it differs, in bearing small Bulbs at the Leaves. This is not common in England, but is found wild on the Pyrenean Mountains, and in other mountainous Places in Spain and Italy, and propagates very fast by the Bulbs, which grow on the Stalks, in the same manner as the fiery Lily.

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The second Sort is a low annual Plant, which usually grows on the Tops of Walls, and on dry rubbishy Places, and flowers in April. This Plant has been esteemed a very good Remedy for the King's-evil, and other scrophulous Disorders. Mr. Boyle, in his Treatise concerning the Usefulness of Natural Philosophy, has recommended this Herb to be infused in small Beer, and drank for some Days, which he says will cure the King's-evil, without any sensible Evacuation, by consuming the Humour, mitigating the Pain, dissolving the Tumours, and drying up the Ulcers. The Time for gathering of this Herb to dry, is in the middle of April, when it is in Flower; for it soon after perfects its Seeds, and dies away.

The third Sort grows wild in several Parts of Yorkshire, and other cold Countries. This spreads on the Surface of the Ground, and forms itself into a roundish Tuft, which is exceeding close and soft, and has the Appearance of Moss at a small Distance; from whence some of the Country People give it the Name of Ladies-cushion. This Sort may be propagated in Plenty by its trailing Shoots, which, if they rest on the Ground, will put out Roots, and multiply exceedingly. It loves a moist shady Situation.

The fourth, fifth, sixth, twelfth, thirteenth, seventeenth, eighteenth and nineteenth Sorts, are also small Plants, which lie close to the Ground, somewhat resembling the third Sort; in like manner they propagate themselves plentifully, and are all of them very hardy Plants, being Natives of the Alps, Pyrenees, and other mountainous Places: they require to be planted in a moist Soil, and a shady Situation; for if they are too much exposed to the Sun, they

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they will not thrive; nor will they continue long, if they are planted in a rich Soil.

As these Plants do not produce very beautiful Flowers, they are seldom regarded, and rarely planted in Gardens, unless by some Persons who are curious in Botany, for the sake of Variety. But yet they may be introduced to plant about Rock-work, or between the Joints of rustic Buildings, where, if they are in the Shade, they will thrive very well, and have a very good Effect to the Sight: for these will succeed, where Moss cannot be planted; and having so much the Appearance of Moss, will be by most People taken for it at a small Distance; and as these continue green throughout the Year, they will much better answer the Purpose.

The seventh, eighth, ninth, tenth, eleventh and fourteenth Sorts, have broader Leaves, and appear very much like some Sorts of Houseleeks. These are very hardy Plants, being Natives of Northern Countries; wherefore they must be planted in a shady Situation, and a poor Soil; but they will grow on drier Places than the former Sorts. These Plants are easily propagated by Off-sets, which they send out in great Plenty, and may be adapted to the same Purposes as the former, to adorn Rock-work, &c. and will make a pretty Diversity.

The twentieth Sort is an annual Plant, which was found by Dr. Tournefort, in the Island of Crete, and is by some preserved for the sake of Variety; but there is no great Beauty in it.

The twenty-first Sort was brought from *Pensylvania* to Mr. Peter Collinson, who hath distributed it to several Persons who are curious in preserving rare Plants. This Sort hath long Leave; which spread on

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the Surface of the Ground, from between which arise the Flower-stems, which grow about two Feet high, and branch toward the Top, bearing Clusters of small greenish Flowers. This is propagated by parting of the Roots, and should be planted in a shady Situation, where if duly watered in dry Weather, it will thrive and flower every Year plentifully, and may be allowed a Place in shady Borders for the sake of Variety.

SCABIOSA, Scabious.

To this Article must be added;

1. SCABIOSA *fruticans latifolia alba*. C. B. P. White broad-leaved shrubby Scabious.

2. SCABIOSA *fruticans latifolia, floribus ad cœruleum inclinantibus*. C. B. P. Broad-leaved shrubby Scabious, with Flowers inclining to Blue.

3. SCABIOSA *frutescens angustifolia alba*. C. B. P. White narrow-leaved shrubby Scabious.

4. SCABIOSA *multifido folio, flore flavescente*. C. B. P. Scabious with a variously divided Leaf, and a yellowish Flower.

5. SCABIOSA *montana glabra, foliis scabiosæ vulgaris*. C. B. P. Mountain smooth-leaved Scabious.

6. SCABIOSA *montana latifolia non laciniata, rubra & prima*. C. B. P. The first red broad-leaved mountain Scabious, not jagged.

7. SCABIOSA *latifolia rubra non laciniata secunda*. C. B. P. The second red broad-leaved Scabious, not jagged.

8. SCABIOSA *argentea angustifolia*. C. B. P. Narrow silver-leaved Scabious.

9. SCABIOSA *Sicula fruticans, laureolæ folio, subtus incano*. *Inf.* R. H. Shrubby Sicilian Scabious, with a Spurge-laurel-leaf, hoary underneath.

10. *SCABIOSA frutescens, foliis leucis hortensis.* Hort. Cath. Shrubby Scabious, with stock-gilly-flower Leaves.

11. *SCABIOSA Cretica frutescens, auriculæ urfi folio.* Tourn. Cor. Shrubby Candy Scabious, with a Bear's-ear-leaf.

12. *SCABIOSA frutescens, foliis infra integris, flore cæruleo.* Boerb. Ind. Shrubby Scabious, with the lower Leaves intire, and a blue Flower.

13. *SCABIOSA perennis Sicula, flore sulphureo.* Boerb. Ind. Perennial Sicilian Scabious, with a brimstone-coloured Flower.

14. *SCABIOSA stellata frutescens, leucis folio, minor, una alterave crena inciso.* Flor. Bat. Shrubby starry seeded Scabious, with a smaller stock-gilly-flower Leaf.

15. *SCABIOSA Africana frutescens maxima, foliis rugosis, & crenatis minus.* Par. Bat. Greatest shrubby African Scabious, with rough and less notched Leaves.

16. *SCABIOSA Africana frutescens maxima, foliis tenuissime incis.* Boerb. Ind. alt. Greatest shrubby African Scabious, with Leaves very finely jagged.

17. *SCABIOSA altissima annua, foliis agrimonie nonnihil similibus.* H. L. The tallest annual Scabious, with Leaves something like those of Agrimony.

18. *SCABIOSA fraxinellæ foliis.* Inst. R. H. Scabious with White-dittany-leaves.

19. *SCABIOSA virgæ pastoris folio.* C. B. P. Scabious with a Lesser-teasel-leaf.

20. *SCABIOSA Lusitanica, Indicæ similis.* Inst. R. H. Portugal Scabious, like the Indian one.

21. *SCABIOSA stellata Hispanica, amplissimo folio.* Inst. R. H. Spanish starred Scabious, with a very large Leaf.

22. *SCABIOSA stellata annua prolifera.* H. R. Par. Annual prolific starred Scabious.

23. *SCABIOSA orientalis stellata, foliis variis, flore carneo, semisfoculis florum fimbriatis.* Eastern starred Scabious, with variable Leaves, and a flesh-coloured Flower, whose Half-florets are fringed.

The first, second, third, fourth, fifth, sixth, seventh, eighth, twelfth, thirteenth, eighteenth and nineteenth Sorts, are all of them abiding Plants, which are hardy enough to live in the open Air in England: wherefore they may be managed as hath been directed for the common Sorts of Scabious, in the former Volumes of the *Gardeners Dictionary*.

The ninth, tenth, eleventh and fourteenth Sorts, are also abiding Plants; but are somewhat tenderer than those before-mentioned: wherefore some Plants of each Kind should be kept in Pots, that they may be sheltered in Winter under a common Hot-bed Frame; and the others must be planted in warm Borders, otherwise they will not live through the Winters in this Country: and if the Soil in which these are planted, is poor and dry, they will grow stunted, and bear the Cold much better, than those which are planted in a rich Soil, and grow freely. Those Plants which are in Pots, and are placed in Shelter in Winter, must have as much free Air as possible in mild Weather; otherwise they will draw up weak, and appear very unsightly; for which Reason they should only be covered in very hard Frosts, and continually exposed in mild Weather.

The fifteenth and sixteenth Sorts were brought from the *Cape of Good Hope*, and are more tender than the former: therefore these must always be kept in Pots, and in Winter should be placed in an airy Glass-case, where
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in mild Weather they may have as much free Air as possible: they should be frequently watered; for they are very thirsty Plants. In severe Frost they must be carefully guarded, but they will bear a little Cold pretty well.

All the shrubby Sorts of Scabious may be propagated by Cuttings, which may be taken off during any of the Summer Months, and should be planted in a shady Border, and duly watered in dry Weather, which will promote their taking Root; and then they may be potted, and placed in a shady Situation, till they have taken new Root; after which time they may be placed amongst other hardy Exotic Plants, in a sheltered Situation, where they may remain until the End of *October*, when they must be removed into Shelter. In some favourable Seasons these Sorts will produce good Seeds in *England*, so that the Plants may be raised from these, by sowing them in an open Border of light Earth about the middle of *March*: and if the Spring should prove very dry, it will be necessary to water the Ground now-and-then, which will forward the Vegetation of the Seed; so that the Plants will appear in about three Weeks after the Seeds are sown. When they come up, they must be kept clear from Weeds, and in dry Weather duly watered; and when they are strong enough to transplant, they should be planted in Pots, and managed in the same manner as those Plants which are propagated by Cuttings.

The seventeenth, twentieth, twenty-first, twenty-second and twenty-third Sorts, are annual Plants, which are only propagated by Seeds. These may be managed in the same manner as hath been directed for the *Indian*

Scabious, in the former Volumes of the *Gardeners Dictionary*.

All the Sorts of Scabious continue a long time in Flower, for which they are regarded; for there is no very great Beauty in their Flowers: but as most of the hardy Sorts produce Flowers near three Months successively, they may be allowed a Place in the Borders of large Gardens, because they require very little Care to cultivate them. And as the shrubby Kinds continue in Flower most Part of the Year, they make an agreeable Variety amongst hardy Exotic Plants in Winter.

SCANDIX, Shepherds Needle, or Venus-comb.

The Characters are;

It hath a rose-shaped umbellated Flower, consisting of several Petals, which are ranged orbicularly, and rest on the Empalement; which becomes a Fruit consisting of two Parts, having two Seeds, which resemble a Needle, when joined.

The Species are;

1. SCANDIX *femine rostrato, vulgaris*. C. B. P. Common Shepherds Needle, with beaked Seeds.

2. SCANDIX *Cretica major*. C. B. P. Great Shepherds Needle of Crete.

3. SCANDIX *Cretica minor*. C. B. P. Smaller Shepherds Needle of Crete.

4. SCANDIX *orientalis, flore maximo*. Tourn. Cor. Eastern Shepherds Needle, with a very large Flower.

The first of these Plants grows wild amongst Corn, in most Parts of *England*. The second and third Sorts grow wild in the Island of *Candia*, and the fourth Sort was discovered by Dr. *Tournefort* in the *Levant*.

These Plants are preserved by the Curious in Botany, for the sake of Variety; but are seldom admitted into other Gardens. The Fruit of these Plants, having Beaks, greatly resemble

resemble Cranes Bills at a small Distance; but being ranged somewhat like the Teeth of a Comb, occasioned the Name given to it.

They may be propagated by Seeds, which should be sown in Autumn, soon after they are ripe, in the Place where they are designed to remain, which should be in a shady Situation; and when the Plants are come up, they will require no farther Care, but to keep them clear from Weeds. In *June* the Plants will flower, and in the Beginning of *August* they will perfect their Seeds, and soon after decay. But if their Seeds are permitted to scatter, the Plants will come up without any manner of Care, and become Weeds in the Garden.

SCOLYMUS, The Golden Thistle.

The Characters are;

The whole Plant hath the Appearance of a Thistle: the Flower consists of many Half-florets, which rest on the Embryo's; each of these are separated by a thin Leaf, and on the Top of each Embryo is fastened a little Leaf. These are contained in a scaly Empalement, which incloses the Seed.

The Species are;

1. SCOLYMUS *chrysanthemus*. C. B. P. The Golden Thistle.
2. SCOLYMUS *chrysanthemus annuus*. H. R. Par. Annual Golden Thistle.
3. SCOLYMUS *chrysanthemus Africanus procerior*. H. R. Par. Taller African Golden Thistle.

The first and second Sorts grow wild in the South of *France*, and in *Spain*; but the third Sort is a Native of *Africa*. The first and third Sorts are biennial Plants; but the second being an annual, will perish soon after it hath perfected its Seeds.

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They are propagated by Seeds, which should be sown in *March*, on a Bed of fresh undunged Earth, in an open Situation; and when the Plants are come up, they should be kept clear from Weeds; and where they grow too close, some of them should be pulled out, so as to leave those which are designed to remain, about two Feet asunder. This is all the Culture which these Plants require; for as they send forth tap Roots, they do not bear transplanting well: therefore they must be sown where they are to remain, and if they are kept clear from great Weeds, they will thrive very well; and when the Seasons prove dry, will perfect their Seeds in Autumn; but in wet Seasons they rarely ever produce good Seeds in *England*; which renders it difficult to continue the Species, without procuring fresh Seeds from Abroad.

These Plants are preserved by those Persons who are curious in Botany, for Variety sake, but are rarely planted in other Gardens.

SCORPIOIDES, Caterpillar.

To this Article must be added;

1. SCORPIOIDES *filiqua cochleata & striata, Olyssiponenfis*. H. R. Par. Caterpillar with a cochleated and furrowed Pod.

2. SCORPIOIDES *foliis vicie, minima*. Mor. Hist. The least Caterpillar, with Vetch-leaves.

These are both annual Plants, which are propagated by Seeds in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the Sorts there enumerated.

SCROPHULARIA, Figwort.

The Species omitted in the former Volumes, are;

1. SCROPHULARIA *flore luteo*. C. B. P. Figwort with a yellow Flower.

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2. SCROPHULARIA *folio urticæ*.
C. B. P. Figwort with a Nettle-
leaf.

3. SCROPHULARIA *betonicæ folio*.
Inst. R. H. Figwort with a Betony-
leaf.

4. SCROPHULARIA *scorodonix folio*.
Mor. Hist. Figwort with a
Wood-sage-leaf.

5. SCROPHULARIA *peregrina frutescens, foliis teucrii crassiusculis*.
Breyn. Cent. Foreign shrubby Fig-
wort, with thick Germander-leaves.

6. SCROPHULARIA *minor, Ruta canina dicta*. Moriss. Hist. Lesser
Figwort, called Dogs-rue.

7. SCROPHULARIA *Lusitanica frutescens, verbenacæ foliis*. Inst. R. H. Shrubby Portugal Figwort,
with Vervain-leaves.

8. SCROPHULARIA *Cretica frutescens, folio vario crassiori*. Tourn. Cor. Shrubby Figwort of Candia,
with a thicker variable Leaf.

9. SCROPHULARIA *Græca frutescens & perennis, urticæ folio*. Tourn. Cor. Greek shrubby and perennial
Figwort, with a Nettle-leaf.

10. SCROPHULARIA *Ephefia, lunaria folio, flore rubro*. Tourn. Cor. Ephesian Figwort, with a Moon-
wort-leaf, and a red Flower.

11. SCROPHULARIA *orientalis, foliis cannabinis*. Tourn. Cor. Eastern
Figwort, with bastard Hemp-leaves.

12. SCROPHULARIA *orientalis, amplissimo folio, caule alato*. Tourn. Cor. Eastern Figwort, with a large
Leaf, and a winged Stalk.

13. SCROPHULARIA *orientalis, tilix folio*. Tourn. Cor. Eastern
Figwort, with a Lime-tree-leaf.

14. SCROPHULARIA *orientalis, chrysanthemi folio, flore minimo variegato*. Tourn. Cor. Eastern Fig-
wort, with a Corn-marygold-leaf,
and the least variegated Flower.

The first, second, third, sixth,
tenth and fourteenth Sorts, are bien-

nial Plants, which very rarely live
longer than two Years. These seldom
flower the same Season their Seeds
are sown; or if they do, it is gene-
rally pretty late in the Autumn, so
that they do not produce good Seeds;
but when the Plants grow short, and
do not put out their Flower-stems
the first Year, they flower very
strong early in the following Sum-
mer, and produce good Seeds. These
Sorts are hardy enough to endure the
Cold of our ordinary Winters very
well, provided they are planted in a
dry undunged Soil.

The fourth, fifth, seventh, eighth,
ninth, eleventh, twelfth and thir-
teenth Sorts, are abiding Plants,
their Roots continuing many Years;
and the eleventh Sort creeps at the
Root, so that it propagates very fast
that way, as also by Seeds. This is
an extreme hardy Plant, and will
live in almost any Soil and Situation;
but should not be planted too near
other Plants; because it creeps so
far, as to interfere with such Plants
as grow near it.

The other Sorts will endure the
Cold of our ordinary Winters very
well, if they are planted in a sheltered
Situation; and when they are
planted in a lean rubbishy Soil, they
will not grow too freely; but will
be stinted, and will endure a much
greater Share of Cold, than when
they are planted in a rich Soil,
where they become very luxuriant.

All these Sorts may be propagated
by Seeds, which may be sown, and
the Plants managed in the same
manner as hath been directed in the
former Volumes of the *Gardener's
Dictionary*, for those Sorts which are
there enumerated; and being inter-
mixed with other hardy Plants in a
large Garden, will make an agree-
able Variety.

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SEDUM, Houfeleek.

To this *Article* must be added ;

1. *SEDUM majus montanum, dentatis foliis, alterum.* C. B. P. Another great mountain Houfeleek, with indented Leaves.

2. *SEDUM majus montanum, foliis non dentatis, floribus rubentibus.* C. C. P. The great mountain Houfeleek, with indented Leaves, and reddish Flowers.

3. *SEDUM teretifolium majus, flore albo.* Mor. Hort. R. Blasf. Greater Houfeleek, with taper Leaves, and a white Flower.

4. *SEDUM minus, lato & crasso caule, Portlandicum Belgarum.* H. R. Par. Small Portland Houfeleek, with a broad and thick Stalk.

5. *SEDUM Alpinum roseum, acuto folio, hematodes majus.* H. R. Par. Greater bloody rose Houfeleek of the *Alps*, with a sharp-pointed Leaf.

6. *SEDUM Alpinum roseum medium, aculeo rubente.* H. R. Par. Middle rose Houfeleek of the *Alps*, with reddish Prickles.

7. *SEDUM Alpinum roseum minus, viride & subhirsutum.* H. R. Par. Small rose green and hairy Houfeleek of the *Alps*.

8. *SEDUM Alpinum subhirsutum, folio longiore.* H. R. Par. Hairy Houfeleek of the *Alps*, with a longer Leaf.

9. *SEDUM Alpinum subhirsutum, corona floris purpurascente, disco viridi.* H. R. Par. Hairy Houfeleek of the *Alps*, with the Borders of a purplish Colour, and the middle green.

10. *SEDUM minus teretifolium luteum.* C. B. P. Small taper-leaved yellow Houfeleek.

11. *SEDUM minus teretifolium alterum.* C. B. P. Another small taper-leaved Houfeleek.

12. *SEDUM longifolium, citrino flore.* Mor. H. R. Blasf. Long-leaved Houfeleek, with a citron-coloured Flower.

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13. *SEDUM minimum luteum, non acre.* J. B. The smallest yellow Houfeleek, which is not acrid.

14. *SEDUM minimum non acre, flore albo.* Raii Hist. The least Houfeleek, which is not acrid, with a white Flower.

15. *SEDUM Alpinum, flore pallido.* C. B. P. Alpine Houfeleek, with a pale Flower.

16. *SEDUM Alpinum, rubro magna flore.* C. B. P. Alpine Houfeleek, with a large red Flower,

17. *SEDUM Hispanum, folio glauco acuto, flore albido.* Boerb. Ind. alt. Spanish Houfeleek, with a pointed sea-green Leaf, and a whitish Flower.

18. *SEDUM palustre subhirsutum purpureum.* C. B. P. Hairy purple marsh Houfeleek.

19. *SEDUM echinatum, vel stellatum, flore albo.* J. B. Starry Houfeleek, with a white Flower.

20. *SEDUM echinatum, flore luteo.* J. B. Prickly Houfeleek, with a yellow Flower.

All these Sorts of Houfeleek are very hardy Plants, which will thrive in the open Air in *England*, and may be easily propagated by Off-sets or Branches, which will readily take Root. Those Kinds which trail on the Ground (as many of these do) will push out Roots from their Branches, and thereby spread themselves to a great Distance. But the seventeenth, nineteenth and twentieth Sorts, are annual Plants, which are only propagated by Seeds; but if their Seeds are permitted to scatter on the Ground, the Plants will come up in Autumn, and require no other Care, but to clear them from great Weeds, which, if permitted to grow amongst them, would overbear and destroy the Plants.

These Plants are preserved in the Gardens of some Persons, who are

curious in Botany ; but are very rarely admitted into other Gardens ; tho' they may be very ornamental, when rightly disposed. For there are no Plants so proper to plant on the Walls of Ruins, or other rustic Buildings, where they will thrive without any Trouble, and endure the greatest Drought, and are never injured by Frosts. And as there is a great Variety of *Species*, which differ greatly from each other, not only in their Flowers, but also in the whole Face of the Plants ; they will afford an agreeable Variety, if they are properly disposed. In planting of these Sorts, there is no other Care required, but to lay a little moist Earth on the Joints of the Walls or Buildings, where they are designed to grow, and therein to plant some of the Kinds in small Bunches, which will soon take Root, and in one Year's time will spread to a considerable Distance. The best Season for this Work is a little before *Michaelmas*, that the Plants may be rooted, before the hard Frost comes on. The annual Kinds will also grow in the same manner, and will shed their Seeds, and maintain themselves without any Trouble, when they are once fixed in the Place. These Sorts will most of them grow from the Joints of Walls, which are perpendicular, where scarce any other Plants will live ; which renders them more valuable, especially as they are so easily propagated.

The third, tenth and eleventh Sorts, produce long Branches, which hang down from the Walls where they grow ; therefore should be disposed near the Edges of Buildings, or on the Tops of rustic Houses, and near the Sides, where they will trail, and make a pretty Appearance.

The thirteenth, fourteenth and seventeenth Sorts, have the Appearance of the Stone-crop ; these have short Branches, and small Leaves, producing their Flowers on the Tops of the Shoots, which are seldom above three or four Inches high, but spread and form themselves into close large Bunches ; and where they scatter their Seeds, if there is but a small Share of Earth, the Plants will come up, and multiply so fast, as to cover the Top of a House in a few Years.

The first, second, fourth, fifth, sixth, seventh, eighth, ninth, twelfth, fifteenth, sixteenth and eighteenth Sorts, grow in close Heads, somewhat like the common Houseleek, and are propagated by Off-sets in the same manner ; these may be disposed on the Tops of Walls and Buildings, intermixed with the common Sorts of Houseleek, where they will make a pretty Diversity, being very different in their Appearance, and producing a great Variety of their Flowers.

SEEDS.

In the former Volumes of the *Gardeners Dictionary*, I have set down the general Definition of a Seed, and an Explanation of the Manner how Seeds vegetate ; as also a Method how to raise such Exotic Seeds as have hard Covers, which will not vegetate in the same easy manner, as most other Sorts do ; and in this Place it may not be amiss to add a Table of the several Sorts of Seeds which are usually sown in the *English* Gardens, and to distinguish the Sorts which will keep good but a short time out of the Ground, from those which, if well saved, and carefully preserved, will grow, if kept some Years before they are sown.

The first Class of Seeds which I shall enumerate, is of those which should

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should be sown in the Autumn, soon after they are ripe; otherwise many of them will not succeed, and others of them will often remain in the Ground a whole Season, if they are kept out of the Ground till Spring, so that a full Year is thereby lost:

- Adonis *or* Flos Adonis, *see* Adonis.
- Alexanders *or* Alistanders, *see* Smyrnium.
- Anemomy *or* Windflower, *see* Anemone.
- Angelica.
- Arsmart, the Eastern Sort, *see* Persicaria.
- Ash-keys, *see* Fraxinus.
- Asphodel *or* Kingspear, *see* Asphodelus.
- Auricula.
- Beech-mast, *see* Fagus.
- Bishopsweed, *see* Ammi.
- Christopher-herb, *see* Christophoriana.
- Ciceli, *see* Myrrhis.
- Colchicum *or* Bastard-saffron.
- Cornfallet, *see* Valerianella.
- Cornflag, *see* Gladiolus.
- Crocus.
- Crown Imperial, *see* Corona Imperialis.
- Fenel-giant, *see* Ferula.
- Flower-de-luce, *see* Iris.
- Fraxinella.
- Fritillaria *or* Chequered Tulip.
- Gentian, *see* Gentiana.
- Ground-pine, *see* Chamæpytis.
- Hares-ear, *see* Bupleurum.
- Hart-wort, *see* Bupleurum *and* Sefeli.
- Hogs-fenel, *see* Peucedanum.
- Hornbeam, *see* Carpinus.
- Hyacinth, *see* Hyacinthus.
- Juniper, *see* Juniperus.
- Laferwort, *see* Laferpitium.
- Lily, *see* Lilium.
- Lily-Asphodel, *see* Lilio-Asphodelus.
- Lily-Hyacinth, *see* Lilio-Hyacinthus.

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- Lily-Narcissus, *see* Lilio-Narcissus.
- Lovage, *see* Ligusticum.
- Mandrake, *see* Mandragora.
- Maple-tree, *see* Acer.
- Masterwort, *see* Imperatoria *and* Astrantia.
- Mercury, *see* Mercurialis.
- Moly.
- Muscari.
- Narcissus *or* Daffodil.
- Oak, *see* Quercus.
- Oak of Jerusalem, *see* Chenopodium.
- Pasque-flower, *see* Pulsatilla.
- Piony, *see* Pæonia.
- Polyanthus, *see* Primula Veris.
- Ranunculus *or* Crowfoot.
- Samphire, *see* Crithmum.
- Scurvy-grass, *see* Cochlearia.
- Sefeli *or* Sermountain, *see* Siler.
- Snow-drop, *see* Narcisso-leucoium.
- Sowbread, *see* Cyclamen.
- Spiderwort, *see* Phalangium.
- Spignel, *see* Meum.
- Star of Bethlehem, *see* Ornithogalum.
- Staves-acre, *see* Delphinium.
- Tulip, *see* Tulipa.
- Turnsole, *see* Heliotropium.
- Yew-tree, *see* Taxus.

In the next Class I shall enumerate those Sorts of Seeds, which are best the first Spring after they are sowed, many of which will not grow, if they are kept longer; so that whoever deals in Seeds, should destroy the Seeds they have remaining after the Season is over, and not sell them to impose on their Dealers to the great Loss of their Crops, nor keep them to mix with new Seeds, as is too often practised.

- African Marygold, *see* Tagetes.
- Agrimony, *see* Agrimonia.
- Alkanet, *see* Anchusa.
- Amaranthoides *or* Globe-Amaranthus.
- Anise, *see* Anisum.
- Asparagus *or* Spearage.

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Balsamine, *see* Balfamina.
 Bafil, *see* Ocymum.
 Bastard-saffron, *see* Carthamus.
 Bay-tree, *see* Laurus.
 Bean, *see* Faba.
 Beet, *see* Beta.
 Blue-bottle, *see* Cyanus.
 Borrage, *see* Borago.
 Buckweat, *see* Fagopyrum.
 Bugloss, *see* Buglossum.
 Canterbury-bell, *see* Campanula.
 Caraway, *see* Carum.
 Carnation, *see* Caryophyllus.
 Carrot, *see* Daucus.
 Caterpillar, *see* Scorpioides.
 Celery, *see* Apium.
 Chervil, *see* Chærophylum.
 Chestnut, *see* Castanea.
 Chickling-pea, *see* Cicer.
 Clary, *see* Horminum.
 Columbine, *see* Aquilegia.
 Coriander, *see* Coriandrum.
 Cranebill, *see* Geranium.
 Cress, *see* Nasturtium.
 Cummin, *see* Cuminum.
 Cypress, *see* Cupressus.
 Dames-violet, *see* Hesperis.
 Everlasting-pea, *see* Lathyrus.
 Fenel, *see* Fœniculum.
 Fenel-flower, *see* Nigella.
 Fenugreek, *see* Fœnum Græcum.
 Fenchia, *see* Fœniculum.
 Firr, *see* Abies.
 French-honeysuckle, *see* Hedy-
 farum.
 French-marygold, *see* Tagetes.
 Goats-rue, *see* Galega.
 Globe-thistle, *see* Echinopus.
 Gromwel or Gray-mill, *see* Li-
 thospermum,
 Hemp, *see* Cannabis.
 Henbane, *see* Hyoscyamus.
 Hollyhock, *see* Malva-rosea.
 Hyssop, *see* Hyssopus.
 Indian-pepper, *see* Capsicum.
 Kidney-bean, *see* Phaseolus.
 Larch-tree, *see* Larix.
 Larkspur, *see* Delphinium.
 Lavender, *see* Lavendula.

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Laurel, *see* Laurocerasus.
 Leek, *see* Porrum.
 Lentil, *see* Lens.
 Love-apple, *see* Lycopersicon.
 Lupine, *see* Lupinus.
 Lychnis or Catchfly.
 Mad-apple, *see* Melongena.
 Mallow, the Venetian, *see* Ketmia.
 Marjoram, *see* Majorana.
 Marvel of Peru, *see* Jalapa.
 Marygold, *see* Caltha.
 Millet, *see* Miliun.
 Mullein, *see* Verbascum.
 Moth-mullein, *see* Blattaria.
 Navew, *see* Napus.
 Oil-nut or Palma Christi, *see*
 Ricinus.
 Roman-nettle, *see* Urtica.
 Onion, *see* Cepa.
 Orach, *see* Atriplex.
 Origany, *see* Origanum.
 Panic, *see* Panicum.
 Parsley, *see* Apium.
 Parsnip, *see* Pastinaca.
 Pease, *see* Pisum.
 Pine, *see* Pinus.
 Pink, *see* Caryophyllus.
 Poppy, *see* Papaver.
 Purslain, *see* Portulaca.
 Radish, *see* Raphanus.
 Rape, *see* Napus.
 Rue, *see* Ruta.
 Savory, *see* Satureia.
 Scabious, *see* Scabiosa.
 Skirret, *see* Sisarum.
 Snails, *see* Medica.
 Snapdragon, *see* Antirrhinum.
 Spinach, *see* Spinachia.
 Stock-gilly-flower, *see* Leucoium.
 Succory, *see* Cichoreum.
 Sun-flower, *see* Corona-folis.
 Thyme, *see* Thymus.
 Tobacco, *see* Nicotiana.
 Trefoil, *see* Trifolium.
 Turnep, *see* Rapa.
 Venus Looking-glass, *see* Cam-
 panula.
 Venus Navelwort, *see* Ompha-
 lodes.

Vetch,

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Vetch, *see* Vicia.

Woad, *see* Iſſatis.

Wallflower, *see* Leucoium.

The next Claſs of Seeds are ſuch as may be kept two Years, and will not be the worſe, provided they are well ſaved. Tho' theſe are equally good for Uſe the firſt Year :

Amaranthus *or* Flower-gentle.

Citrus *or* Water-melon, *see* Anguria.

Cabbage, *see* Braſſica.

Clover, *see* Trifolium.

Colliflower, *see* Braſſica.

Convolvulus *or* Bindweed.

Endive, *see* Endivia.

Flax, *see* Linum.

Indian Flowering-reed, *see* Canacorus.

La-lucern, *see* Medica.

Lavender, *see* Lavendula.

Lettuce, *see* Laſtuca.

Melilot, *see* Melilotus.

Muſtard, *see* Sinapi.

Sorrel, *see* Acetoſa.

The third Claſs of Seeds are ſuch as may be kept three Years or more, and will grow very well afterward, provided they are well ſaved ; and ſome of the Sorts are generally preferred for being three Years old, particularly the Cucumber and Melon Seeds ; becauſe when the Seeds are new, the Plants grow too vigorous, and produce a ſmall Quantity of Fruit : but it is not proper to keep theſe longer than three Years, notwithstanding they will grow at eight or nine Years old ; becauſe when the Seeds are old, the Plants will be weak, and the Fruit which they produce will be ſmall.

Amaranthus *or* Flower-gentle.

Cabbage, *see* Braſſica.

Cedar of Libanus, *see* Cedrus, *if kept in the Cones.*

Cucumber, *see* Cucumis.

Gourd, *see* Cucurbita.

Lettuce, *see* Laſtuca.

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Melon, *see* Melo.

Pumpkin, *see* Pepo.

Savoy, *see* Braſſica.

Simnel *or* Squaſh, *see* Melopepo.

Water Melon, *see* Anguria.

The following is a Liſt of ſuch Seeds, as do frequently remain in the Earth a whole Year, eſpecially if they are ſown in the Spring of the Year ; ſo that whenever the Plants do not come up the firſt Year, the Ground ſhould remain undiſturbed till the following Spring, (but muſt be kept clear from Weeds) when the Plants will come up :

Adonis *or* Flos Adonis.

Alaternus.

Alexanders, *see* Smyrniſm.

Angelica.

Corn-fallet, *see* Valerianella.

Fenel, *see* Fœniculum.

Fraxinella *or* white Dittany.

Grom-well *or* Gray-mill, *see* Lithoſpermum.

Hareſear, *see* Bupleurum.

Hartwort, *see* Bupleurum.

Hawthorn, *see* Mespilus.

Hogs-fenel, *see* Peucedanum.

Holly, *see* Aquifolium.

Juniper, *see* Juniperus.

Laſerwort, *see* Laſerpitium.

Lovage, *see* Liguſticum.

Maple, *see* Acer.

Maſterwort, *see* Aſtrantia.

Mercury, *see* Mercurialis.

Moly.

Piony, *see* Pœonia.

Sefeli *or* Sermountain, *see* Siler.

Spignel, *see* Meum.

Staves-acre, *see* Delphinium.

Turnſole, *see* Heliotropium.

Yew, *see* Taxus.

If the Seeds mentioned in this Liſt are ſown ſoon after they are ripe, many of the Sorts will come up the following Spring ; but whenever they fail ſo to do, there will be no Danger of their growing the following Year, provided the Seeds were

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good ; therefore People should not despair of them the first Year. Most of the umbelliferous Plants have this Property of remaining in the Ground several Months, and sometimes a whole Year, before the Plants appear ; therefore they should be managed accordingly, by sowing their Seeds on a Border, which can be suffered to remain undisturbed till the Plants come up. There are some particular Sorts of Seeds, which I have known remain in the Ground eighteen Months, and sometimes two Years ; after which time the Plants have come up very well ; of these Sorts are the Morina, Tribulus terrestris, Staveacre, Mercury, and some others ; but as they do not constantly remain so long in the Ground, there can be no Certainty of the Time when the Plants will appear.

The Rules here laid down, concerning the Length of Time which Seeds may be kept out of the Ground, and prove good, will in general be found true, being drawn up from several Years Experience, having taken Notes every Year from the Times of sowing great Varieties of Seeds, to the Appearance of the Plants above Ground. And in this, I have observed such Oddness in the Growth of Seeds, as is not to be accounted for ; as that of sowing Seeds of the same Plant for two or three Years successively, and not having had one Plant arise ; and the fourth Year, from the remaining Part of the Seeds, I have had some Plants come up, notwithstanding the Age of the Seeds. At other times it has happened, that some Seeds have grown the same Spring they were sown, and a great Part of them have remained in the Ground till the following Autumn, when the Plants have come up ; so that there have

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been two different Crops, from the same Sowing.

I have also tried many Experiments in keeping of Seeds, and find the best Method to preserve them good, is to keep them in a moderate Temperature of Warmth, where they may not suffer from any Inclemencies in the outward Air, nor have too much Warmth, which will exhale the Moisture too freely, and cause the Seeds to decay sooner than they otherwise would do. This is well known to most People who cultivate Melons ; who, when their Seeds are new, which would occasion the Plants being too vigorous, and therefore not so fruitful, put them into the inner Pocket of their Breeches, which are in constant Wear, where they keep them for six Weeks or two Months before they sow them ; which will weaken the Seeds as much as two Years longer, keeping in the ordinary Way.

All Sorts of Seeds will keep much longer in their Pods, or outer Coverings, where they can be thus preserved ; because the Covering not only preserves them from the Injuries of the outward Air, but if the Seeds are not separated from them, they supply them with Nourishment, and thereby keep them plump and fair. But the Seeds of all soft Fruits, such as Cucumbers, Melons, &c. must be cleansed from the Fruit and Mucilage which surrounds them ; otherwise the rotting of these Parts will corrupt and decay the Seeds in a short time.

When Seeds are gathered, it should always be done in dry Weather, when there is no Moisture upon them ; and then they should be hung up in Bags, (especially those which Vermin eat) in a dry Room ; in which Situation they will keep good, longer than if they were more closely

closely shut up, and the Air excluded from them.

There are but few People so curious as they should be, in saving of their Seeds : some, for want of Judgment, do not distinguish the best Plants of their Kinds, to let grow for Seeds ; and others out of Covetousness, to save a great Quantity of Seeds, frequently let a whole Spot of Ground, filled with any particular Sort of Plants, run up to Seed ; so that the good and bad Plants are saved indifferently, which is the Occasion of the general Complaint of the Badness of the Seeds which are commonly vended, and is what the Dealers in Seeds should endeavour to remedy.

In the Tables here subjoined, I have given the common *English* Names of the Seeds, opposite to which I have added the *Latin* Names, that the Reader may with Ease turn to the several Articles in the Dictionary, where each Sort is particularly treated of, and Directions are given for their Management.

SENNA-SPURIA, Bastard-Senna.

Doctor Tournefort, in his Method, makes the Character of Senna to have a flat Pod, for the most part incurved ; and the Character of Cassia to have swelling Pods, and the Seeds surrounded with Pulp ; so that there are many Plants, which agree in the Flower, and outward Appearance, with the Cassia and Senna, that by this Method are removed from them ; therefore Dr. Herman has given the Name of *Senna-Spuria* to these Plants.

The Characters of which are ;

It hath an irregular roseaceous Flower, (which somewhat resembles a Butterfly-flower) whose Pointal afterwards becomes a Pod, having for the most part two Rows of Seeds.

The Species are ;

1. SENNA-SPURIA *Americana minor herbacea, plerumque hexaphylla, folio obtuso. Houst.* Small American herbaceous Bastard-Senna, having for the most part six obtuse Pinnæ, or Wings, on each Leaf.

2. SENNA-SPURIA *Americana herbacea, odore gravi, orobi Pannonici foliis mucronatis & hirsutis. Houst.* Stinking herbaceous American Bastard-Senna, with Leaves like the Portugal Bitter-vetch, which are pointed and hairy.

3. SENNA-SPURIA *Americana frutescens, foliis mucronatis glabris minoribus, siliquis teretibus, duplici seminum ordine factis. Houst.* Shrubby American Bastard-Senna, with the least smooth pointed Leaves, and taper Pods, containing two Rows of Seeds.

4. SENNA-SPURIA *Americana, plerumque hexaphylla, flore magno, siliqua pentagona alata. Houst.* American Bastard-Senna, for the most part having six Wings to the Leaf, a large Flower, and a five-cornered winged Pod.

5. SENNA-SPURIA *Americana herbacea, orobi Pannonici foliis rotundioribus, flore parvo, siliquis erectis. Houst.* American herbaceous Bastard-Senna, with rounder Portugal Bitter-vetch-leaves, a small Flower, and an erect Pod.

6. SENNA-SPURIA *Americana arborea villosa, foliis latis mucronatis, siliquis articulatis. Houst.* Hoary American tree-like Bastard-Senna, with broad pointed Leaves, and jointed Pods.

7. SENNA-SPURIA *Americana arborea, siliquis compressis angustis longissimis pendulis. Houst.* American tree-like Bastard-Senna, with narrow flat Pods, which are very long, and hang downward.

8. SENNA-SPURIA *Americana tetraphylla herbacea procumbens, sili-*
quis

quis hirsutis. Houst. American four-leaved herbaceous trailing Bastard-Senna, with hairy Pods.

9. SENNA-SPURIA *Americana, siliqua multiplici, foliis herbæ mimosæ. Houst. American Bastard-Senna, with many Pods, and Leaves like those of the Sensitive Plant.*

10. SENNA-SPURIA *Americana frutescens, mimosæ foliis, flore parvo, siliquis hirsutis, brevissimis pediculis insidentibus. Houst. Shrubby American Bastard-Senna, with Leaves like those of the Sensitive Plant, a small Flower, and hairy Pods growing on short Footstalks.*

11. SENNA-SPURIA *Americana frutescens & procumbens, flore maximo, siliquis glabris. Houst. Shrubby and trailing American Bastard-Senna, with a large Flower, and smooth Pods.*

12. SENNA-SPURIA *Americana minima procumbens, foliorum pinnis subrotundis, glabra. Houst. The least trailing American Bastard-Senna, with roundish Wings to the Leaves, which are smooth.*

13. SENNA-SPURIA *Americana, foliis herbæ mimosæ, siliqua singulari, floribus pediculis longioribus insidentibus. Sloan. Hist. American Bastard-Senna, with Leaves like those of the Sensitive Plant, and a single Pod sustained by a long Footstalk.*

14. SENNA-SPURIA *frutescens, foliorum pinnis latioribus, caulibus pilosis, siliquis longissimis pediculis insidentibus. Houst. Shrubby Bastard-Senna, with broader Wings to the Leaves, a hairy Stalk, and Pods growing on long Footstalks.*

15. SENNA-SPURIA *minima procumbens, foliorum pinnis subrotundis, caule pubescente. Houst. The least trailing Bastard-Senna, with roundish winged Leaves, and a downy Stalk.*

These Plants are all of them Natives of the warm Parts of America:

some of them were discovered in *Jamaica*, and the others were found at *Campechy*, and *La Vera Cruz*, by the late Dr. *William Housloun*, who sent their Seeds to *England*, where many of the Plants are now growing.

They are propagated by Seeds, which should be sown on a Hot-bed, early in the Spring; when the Plants come up, they must be frequently watered; and if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats every Evening, to keep the Bed in a moderate Temperature of Heat: but in the Day-time, when the Sun shines warm, the Glasses should be raised with Stones, to admit fresh Air to the Plants, which will prevent their drawing up weak. When the Plants are about two Inches high, they should be carefully removed each into a separate small Pot, filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun, until they have taken new Root; after which time they must have fresh Air admitted to them every Day, in proportion to the Warmth of the Season; and so long as the Nights continue cold, the Glasses must be every Evening covered with Mats, soon after the Sun is gone off from the Bed. These Plants do most of them grow in moist Places; wherefore they should be frequently refreshed with Water, and in Summer they must have it given to them plentifully, otherwise they will not thrive.

In about five or six Weeks after planting, if the Plants have thriven well, they will have filled these small Pots with their Roots; therefore they should then be shaken out of the small Pots, and their Roots trimmed; after which they should

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be planted into larger Pots, and plunged again into the Hot-bed. Such of them as may have grown too tall to remain under the Frames, should be plunged into the Tan-bed in the Stove; but the others may be plunged into the former Hot-bed again, after having stirred up the Tan. As these Plants obtain Strength, they should have a larger Share of fresh Air admitted to them; otherwise they will draw up very weak, and become very tender, and very subject to be infested by Insects; which will render them unsightly, and prevent their Flowering.

The first, second, fourth, fifth, eighth, ninth, twelfth, thirteenth and fifteenth Sorts, frequently flower the first Season; but unless they do this pretty early in *August*, they will not produce ripe Seeds, except they are placed in a warm Stove, and plunged into the Bark-bed; so that where this Conveniency is wanting, they must be raised early in the Spring, and brought as forward as possible in the Spring Season, otherwise good Seeds cannot be obtained in this Country.

The third, sixth, seventh, tenth, eleventh and fourteenth Sorts, are abiding Plants, which grow shrubby; therefore should be inured to bear a large Share of Air, that they may become hardy in Autumn; for these may be placed in the dry Stove in Winter, where, if they are kept moderately warm, they will thrive, and produce their Flowers in plenty. In the Summer Season, these Plants may be placed abroad in a warm Situation, where they are secured from strong Winds; but they must be removed into the Stove in *September*, when the Nights begin to grow cold; otherwise they will lose their Leaves, and become very unsightly. Most of these produce their

Flowers in Winter, which renders them valuable, because in that Season there are not many Plants which make a better Appearance. The seventh Sort will grow to the Height of twelve or fourteen Feet, and will abide many Years. This constantly bears Flowers in the middle of Winter; which being large, and produced in Clusters at the Extremity of the Branches, make a fine Appearance at that Season.

SERJANIA.

This Name was given to this Genus of Plants by Father *Plumier*, who discovered them in *America*, in Honour to the Reverend Father *Philip Sergeant*, who was of the Order of the *Minims*, and a Person well versed in the Knowledge of Botany and Physic.

The Characters are;

It hath a rose-shaped Flower, consisting of four or more Leaves, which are placed in a circular Order; from whose Flower-cup arises the Pointal, which afterward becomes a Fruit composed of three Cells, having three Wings, and each Cell containing one round Seed.

The Species are;

1. *SERJANIA scandens polyphylla* & *racemosa*. *Plum. Nov. Gen.* Climbing and branching *Serjania*, with many Leaves.

2. *SERJANIA scandens emeaphylla* & *racemosa*. *Plum. Nov. Gen.* Climbing and branching *Serjania*, with nine Leaves.

3. *SERJANIA scandens triphylla* & *racemosa*. *Plum. Nov. Gen.* Climbing and branching *Serjania*, with three Leaves.

These Plants were found by the late Dr. *William Houstoun*, at *La Vera Cruz* and *Campechy*; where they grow to a great Height, whenever they grow near large Trees to

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support them; for they have Tendrils by which they fasten themselves to whatever Trees grow near them.

They may be propagated either by Seeds, or from Layers; for if their Branches are laid in the Ground in the Spring, they will make good Roots before Winter; which may be taken off from the old Plants, and planted into separate Pots.

If they are propagated by Seeds, (which must be obtained from the Countries of their natural Growth; for they do not perfect them in England) they must be sown on a Hot-bed early in the Spring; and when the Plants are come up, and are fit to transplant, they should be each put into a separate Pot, filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; after which time they should have a large Share of free Air admitted to them every Day, when the Weather is warm, otherwise they will draw up too weak. As these Plants advance, their Branches must be supported by Stakes, to prevent their trailing over other Plants, which grow near them; and when their Shoots are too tall to remain under the common Frames, they should be shifted into larger Pots, and plunged into the Bark-bed in the Stove; where they must be placed on the Backside, with Granadillas and other climbing Plants, which should be supported by an Espalier, on which they will climb to the Top of the Stove, and make a Variety, as their Leaves always remain green.

In the Summer Season, when the Weather is warm, they should have a great Share of free Air admitted to them, by drawing down the Glasses of the Stove every Day; but

they are too tender to thrive in the open Air in England, even in the middle of Summer; therefore they should be constantly kept in the Stove, where they should have a moderate Degree of Warmth in Winter, in which they will thrive better than in a greater Share of Heat.

SERRATULA, Saw-wort.

The Characters are;

It hath a flosculous Flower, consisting of several Florets, divided into many Parts resting on the Embryo, and contained in a scaly Empalement, like the greater Centaury, from which this differs in having smaller Heads, and from the Knap-weed in having the Borders of the Leaves cut into small sharp Segments, resembling the Teeth of a Saw.

The Species are;

1. SERRATULA vulgaris, flore purpureo. C. B. P. Common Saw-wort, with a purple Flower.

2. SERRATULA flore candido. C. B. P. Common Saw-wort, with a white Flower.

3. SERRATULA Virginiana, foliis rigidis. Par. Bat. Saw-wort of Virginia, with stiff Leaves.

4. SERRATULA præalta altera, angusto plantaginis folio. Bocc. Mus. The tallest Saw-wort, with a narrow Plantain-leaf.

5. SERRATULA præalta centauroides montana Italica. Bocc. Mus. The tallest Saw-wort of the Italian Mountains, resembling Centaury.

6. SERRATULA Noveboracensis altissima, foliis doriæ mollibus subincanis. Par. Bat. The tallest Saw-wort of New York, with soft Doria-leaves, which are white on the Under-side.

The first and second Sorts are pretty common in the Woods, in divers Parts of England, and therefore seldom admitted into Gardens; but as they are Plants which will grow

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grow in the closest Shade, they may be placed under Trees in large Plantations, where they will thrive and flower extremely well, and add to the Variety. They are easily propagated by parting of their Roots in Autumn, so as they may be well rooted before Spring; otherwise they will not flower very strong the following Season.

The third and sixth Sorts are Natives of North America, where they are very common in the Woods. These are hardy Kinds, and will endure the Cold of our ordinary Winters very well; but if they are planted in the full Ground, they should have a moist light Soil; otherwise they will perish in dry Weather, unless they are duly watered. The third Sort seldom rises above two Feet high in this Country; tho' the sixth Sort will sometimes grow to the Height of five or six Feet, if it is planted in a moist rich Soil; but this last is very late in Flowering, so that if the Season proves cold, it many times will not flower in this Country. These are both abiding Plants, which may be propagated by parting of their Roots; the best Time for which is in the Spring, just before they begin to shoot; for as these continue growing in Autumn, until the Frost puts a Stop to them, it would be dangerous to transplant them in Winter.

The fourth and fifth Sorts grow wild in the mountainous Parts of Italy and Spain, but are hardy enough to resist the Cold of this Climate; wherefore they may be intermixed with the other Sorts, in Woods, or under Plantations of Trees, where they will make an agreeable Variety. These Plants may be propagated by Seeds, which should be sown early in the Spring

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on a Border of fresh Earth; and when the Plants appear, they should be carefully weeded, and in very dry Weather they must be frequently watered; which will bring them forward, so that they will soon be fit to transplant. When they are removed, they must be planted in a shady Border, about six Inches apart, and kept duly watered, until they have taken new Root; after which time they will require no farther Care, but to keep them clear from Weeds till Michaelmas, when they should be transplanted where they are designed to remain.

SESELI, Wild-spignel.

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves placed in a Circle, and resting on the Empalement, which afterward becomes a Fruit, composed of two long Seeds, which are channelled. To these Notes must be added, That the Leaves are broader and shorter than those of Fenel.

The Species are;

1. SESELI *perenne, folio glauco breviori. Vaill.* Perennial Wild-spignel, with a shorter Sea-green-leaf.

2. SESELI *perenne, folio glauco longiori. Vaill.* Perennial Wild-spignel, with a longer Sea-green-leaf.

3. SESELI *quæ ferulæ facie, Thapsia five Turbith Gallorum. J. B. Boerb. Ind. alt.* Wild-spignel, with the Face of Giant-fenel, supposed to be the Turbith of the Gauls.

4. SESELI, *quæ Saxifraga Panonica. Clus. Hist. Boerb. Ind. alt.* Wild-spignel, or the Portugal Saxifrage or Clafius.

The three first Sorts are abiding Plants, whose Roots will continue several Years; but the fourth Sort is a bien-

a biennial Plant, which perishes soon after it has perfected its Seeds.

These may be propagated by sowing of their Seeds, which is best done in the Autumn; for when the Seeds are sown in the Spring, they frequently lie in the Ground till the next Year, before the Plants will appear; whereas those which are sown in the Autumn, always rise the following Spring. These Seeds should be sown in Drills, about eighteen Inches asunder, in a Bed of fresh Earth, where they are designed to remain; and in the Spring, when the Plants come up, they should be thinned where they are too close, leaving them about six Inches Distance in the Rows: after this the Plants will require no farther Care, but to keep them constantly clear from Weeds, and the second Season they will produce Seeds. These Sorts, which are permitted to remain after they have seeded, should have the Ground gently dug every Spring between the Rows, to loosen the Earth; but there should be Care taken not to injure their Roots with the Spade. The Plants love a moist Soil; for when they are sown on a dry Soil, they do not thrive near so well, and seldom perfect their Seeds, unless the Season proves moist, or they are duly watered.

SHERARDIA.

This Name was given to this Genus of Plants by Mr. *Vaillant*, who was Professor of Botany at *Paris*, in Honour to Dr. *William Sherard*, who was the most famous Botanist of the Age.

The Characters are;

It hath a labiated Flower consisting of one Leaf, which is divided into five Parts at the Brim; the upper Lip being divided into two, and the under Lip into three Parts: the Ovary, which is at the Bottom

of the Flower-cup, afterward becomes a dry Capsule, containing two oblong Seeds. To these Notes may be added, That the Leaves grow opposite by Pairs.

The Species are;

1. *SHERARDIA repens nodiflora. Vaill. Nov. Gen.* Creeping Sherardia, with Flowers growing in round Heads.

2. *SHERARDIA repens, folio subrotundo crasso, nodiflora. Vaill. Nov. Gen.* Creeping Sherardia, with a roundish thick Leaf, and Flowers collected in round Heads.

3. *SHERARDIA incana nodiflora. Vaill. Nov. Gen.* Hoary Sherardia, with Flowers collected into round Heads.

4. *SHERARDIA nodiflora, stachydis serrati folii folio. Vaill. Nov. Gen.* Round-flowering Sherardia, with a Leaf like the sawed-leaved *Stachas*.

5. *SHERARDIA ocymi folio lanuginoso, flore purpureo. Vaill. Nov. Gen.* Woolly Sherardia, with a Basil-leaf, and a purple Flower.

6. *SHERARDIA teucrii folio, flore purpureo. Vaill. Nov. Gen.* Sherardia with a Tree-germander-leaf, and a purple Flower.

7. *SHERARDIA frutescens, teucrii folio, flore caeruleo purpurascens amplissimo. Vaill. Nov. Gen.* Shrubby Sherardia, with a Tree-germander-leaf, and a large purplish blue Flower.

8. *SHERARDIA teucrii folio, flore coccineo. Vaill. Nov. Gen.* Sherardia with a Tree-germander-leaf, and a scarlet Flower.

9. *SHERARDIA spicata, folio angusto serrato, flore caeruleo. Host.* Spiked Sherardia, with a narrow sawed Leaf, and a blue Flower.

10. *SHERARDIA spicata, flore purpureo, seminibus majoribus, longioribus & laxius digestis. Host.* Spiked

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Sherardia, with a purple Flower, and larger longer Seeds, which are loosely disposed in the Spike.

11. *SHERARDIA verbenæ folio subrotundo crasso, floribus cæruleis, spica longissima & crassissima. Houst.* Sherardia with a thick roundish Verbain-leaf, and blue Flowers, growing in a very long thick Spike.

12. *SHERARDIA foliis oblongis serratis, flore cæruleo, spica longissima. Houst.* Sherardia with oblong sawed Leaves, a blue Flower, and a very long Spike.

13. *SHERARDIA arborescens nodiflora, foliis rugosis & serratis, flore purpureo. Houst.* Tree-like Sherardia, with rough sawed Leaves, and purple Flowers growing in a round Head.

The first of these Plants, being a Native of *Europe*, will thrive in the open Air in this Country, The Seeds of this Kind should be sown in the Spring, on a Bed of light fresh Earth, in a warm Situation, and where the Plants are designed to remain (for they do not bear transplanting very well). When the Plants are come up, they should be thinned so as to leave them a Foot asunder; and if they are kept clear from Weeds, they will require no farther Care. The Branches of this Plant trail on the Ground, and send forth Roots from their Joints, whereby they may be propagated; but if they are not confined, they will not produce many Flowers.

All the other Sorts, being Natives of the warm Parts of *America*, are too tender to thrive in the open Air in *England*; but as most of them are annual, they may be raised by sowing of their Seeds on a Hot-bed; and if the Plants are brought forward early in the Spring, they will flower and produce ripe Seeds before Winter.

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The second Sort was found by Dr. *William Houstoun*, growing plentifully in *Jamaica*. This Plant trails its Branches on the Ground, and emits Roots from the Joint, as the former Sort; but doth not produce many Flowers.

The fourth Sort was found in great Plenty, at *La Vera Cruz*, by Dr. *Houstoun*, as were the ninth, tenth, eleventh, twelfth and thirteenth Sorts, at *Campechy*, by the same Gentleman.

The third, fifth and sixth Sorts, grow plentifully in *Jamaica*, and several other Places in the *West-Indies*, from whence I have received their Seeds.

The seventh Sort is a very specious Plant, which merits a Place in every good Collection of Plants. This produces long Spikes of large blue Flowers, which continue a long time, and make a fine Appearance. It is also an annual Plant, notwithstanding it has the Epithet of Shrubby given to it; for it always flowers the same Summer it is raised: but if it is not brought forward early in the Spring, and constantly kept in the Stove or Glass-case, it will not perfect Seeds in this Country. The Seeds of this Kind were sent to *England* by Mr. *Robert Millar*, Surgeon, who gathered them near *Panama*.

The thirteenth Sort rises to be nine or ten Feet high, and hath a woody Stem. This will abide many Years, provided it is preserved in a Stove in Winter. During the Summer Season, this Sort may be placed in the open Air in a warm Situation, and in hot Weather must be frequently watered; but in Autumn, when the Nights grow cold, the Plants must be removed into the Stove, and in Winter they should have a moderate Share of Heat; with

with which Management the Plants will thrive very well.

All these Plants are propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when they are come up, they should be each transplanted into a separate small Pot, filled with light rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun every Day, until they have taken new Root; after which time they should have a large Share of free Air admitted to them in warm Weather, and they must be frequently watered. When the Plants have filled these Pots with their Roots, they must be shifted into larger Pots; and if there is Room for the Plants to grow under the Glasses of the Hot-bed, without being scorched by the Sun, they should be plunged into the same Bed again; but if there is not Room, they must be placed in the Stove, where they may have Room to grow in Height. In July those Sorts which are annual, will begin to flower, and their Seeds will ripen the Beginning of September.

SICYOIDES, Single-seeded Cucumber.

The Characters are;

It hath an expanded bell-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim; of these Flowers, some are Male, which adhere to no Embryo; and others are Female, which rest on the young Fruit, which is afterward enlarged to the Size of an Almond Kernel, and is flat and prickly, containing one Seed of the same Shape.

The Species are;

1. SICYOIDES *Americana*, fructu echinato, foliis angulatis. *Inst. R. H.*

American Sicyoides, with a prickly Fruit, and angular Leaves.

2. SICYOIDES *Americana*, fructu echinato, foliis laciniatis. *Plum.* *American Sicyoides*, with a prickly Fruit, and jagged Leaves.

These Plants are preserved in some curious Gardens, for the sake of Variety; but as they have little Beauty, and are not useful, they are not much cultivated in England. They are both annual Plants, which may be propagated by sowing of their Seeds in the Beginning of April, on a Border of fresh Earth, in the Place where they are designed to remain; and in about a Fortnight's time the Plants will appear; which at first are very like Cucumber-plants, and, as they grow, will trail on the Ground, and fasten themselves to whatever Plants grow near them, by their Tendrils; so that they should be either sown near a Hedge, where they may climb up, or be allowed a considerable Share of Room, otherwise they will run over the Plants which are near them. When they are come up, they will require no farther Care, but to keep them clear from Weeds, and to thin them where they grow too close together. In June they will produce their Flowers, and in August the Seeds will ripen, which, if permitted to scatter, will produce a Supply of young Plants the following Spring, without any Care.

SIDERITIS, Ironwort or All-heal.

To this Article must be added;

1. SIDERITIS *Anglica*, strumosa radice. *Park. Theat.* English Ironwort, with a strumose Root, commonly called Clowns All-heal.

2. SIDERITIS *arvensis rubra*. *Park. Theat.* Narrow-leaved All-heal or Ironwort.

3. *SIDERITIS foliis hirsutis, profunde crenatis. C. B. P.* Ironwort or All-heal with hairy crenated Leaves.

4. *SIDERITIS Hispanica erecta, folio angustiore. Inst. R. H.* Upright Spanish All-heal, with a narrow Leaf.

5. *SIDERITIS Hispanica crenata procumbens, flore albo, major. Inst. R. H.* Greater trailing Spanish All-heal, with a white Flower.

6. *SIDERITIS Hispanica bituminosa angustifolia crenata. Inst. R. H.* Spanish All-heal, with a bituminous Scent, and a narrow crenated Leaf.

7. *SIDERITIS Hispanica foetidissima glabra, flore purpurascens, & coma canescente. Inst. R. H.* Spanish stinking smooth All-heal, with a purplish Flower, and whitish Tops.

8. *SIDERITIS Hispanica frutescens, seu lignosior. Inst. R. H.* Shrubby or more woody Spanish All-heal.

9. *SIDERITIS Pyrenaica hyssopifolia minima procumbens. Inst. R. H.* The least trailing hyssop-leaved All-heal, of the Pyrenees.

10. *SIDERITIS montana, trifido folio. Barrel. Icon.* Mountain All-heal, with a trifid Leaf.

11. *SIDERITIS Cretica maxima, ocymastri valentini facie. Tourn. Cor.* The greatest All-heal of Candy, with the Face of *Ocymastrum Valentinum*.

12. *SIDERITIS Cretica tomentosa candidissima, flore luteo. Tourn. Cor.* The whitest woolly All-heal of Candy, with a yellow Flower.

The first Sort here mentioned grows plentifully by the Sides of Ditches, and in other moist Places, in divers Parts of England; but is very rarely introduced into Gardens, because it is a very bad Weed, where-

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ever it once gets Place; for the Roots creep very far under Ground, and will soon overrun a large Spot of Ground, if they are not confined. This Plant received the Name of *Clorens All-heal*, from Mr. Gerard, who was looking for Herbs in Kent, where he saw a Mau who had cut his Leg to the Bone with a Scyth, as he was mowing the Grass, to whom he offered his Assistance to cure his Wound; which the Countryman churlishly refusing, crept to the Ditch-side, where there was plenty of this Plant growing; some of which he gathered and bruised, and applied it to the Wound, tying it close with his Handkerchief, which in few Days healed the Wound, without any other Application; for which Reason Gerard has recorded the Story in his *Herbal*, for the Benefit of Mankind.

The second Sort is also a Native of England, and grows amongst the Corn, or other Crops, on arable Land. This is an annual Plant, which perishes soon after it has ripened Seeds.

The other Sorts are most of them biennial Plants, which commonly perfect their Seeds the second Summer, and seldom continue much longer. These may be all propagated by Seeds, which should be sown in Autumn, soon after they are ripe; for when they are kept out of the Ground till Spring, they very often fail. These Seeds should be sown on a Bed of fresh undunged Earth, in an open Situation; and when the Plants come up, they should be thinned where they grow too close; and if they are kept clear from Weeds, it is all the Culture they require. If, when these Plants are established in a Garden, their Seeds are permitted to scatter, the

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Plants will come up, and maintain their Place, provided they are not overborn by large Weeds.

All the Sorts of All-heal are supposed to have an astringent Quality, and are accounted good to heal Wounds, and may be applied either inwardly or outwardly.

SILAUM, Meadow-Saxifrage.

The Characters are ;

It hath a rose and umbellated Flower, consisting of several Leaves, placed circularly, and resting upon the Empalement, which afterward becomes a Fruit composed of two short channelled Seeds. To which Notes must be added, That the Leaves are very narrow, and the Flowers are of a pale yellow Colour.

The Species are :

1. SILAUM *quibusdam, flore luteo.* J. B. Common Meadow-Saxifrage.

2. SILAUM *quod Ligusticum, ferulæ folio.* Inst. R. H. Boerb. Ind. alt. Saxifrage with the Leaf of Giant-fenel.

3. SILAUM *quod Ligusticum Creticum, folio fœniculi, caule nodoso.* Tourn. Cor. Boerb. Ind. Candy Meadow-Saxifrage, with a Fenel-leaf, and a knobby Stalk.

4. SILAUM *quod Ligusticum, cicutæ folio, glabrum.* Tourn. Boerb. Ind. alt. Meadow-Saxifrage, with a smooth Hemlock-leaf.

The first Sort is directed by the College of Physicians to be used in Medicine: this grows wild in Meadows, and other moist Pastures, in divers Parts of England; but the other Sorts, being not Natives of this Country, are only to be met with in Botanic Gardens, where they are preserved for the sake of Variety.

All these Sorts are propagated by Seeds, which may be sown in Autumn on a Border of fresh Earth in

a shady Situation; and when the Plants are come up, they will require no farther Care, but to keep them clear from Weeds, and, where they grow too close, to thin them, so as to leave them about eight or ten Inches asunder, which may be done by houghing of them in the same manner as is practised for Carrots. These Plants will flower and seed the second Summer, and the Roots of the three first Sorts will abide some Years; but the fourth Sort commonly perishes soon after it has produced Seed.

SILER, Sefeli or Sermountain.

The Characters are ;

It hath a rose and umbellated Flower, consisting of several Leaves, which are ranged orbicularly, and rest on the Empalement, which becomes a Fruit composed of two large oblong furrowed Seeds, having filaceous Ridges on one Side. To these Notes may be added, That the Leaves of the Leaves are large, long, and intire, excepting their Extremity, where they are slightly cut into three Parts.

The Species are ;

1. SILER *montanum majus* Mo. Umb. Greater Sermountain.

2. SILER *montanum angustifolium* Park. Narrow-leaved Sermountain.

The first Sort is used in Medicine by the Direction of the College of Physicians. The Seeds of this Sort are the *Semen Seseleos* of the Shops, which enters in Compositions; and the green Herb also is used, for which some of the People who supply the Shops, often impose on their Customers the Mountain Oenanthe, which, by translating *Siler* an Oenanthe may afford them some Pretence.

The second Sort differs from the first, in being somewhat less, and having narrow Leaves: this is found wild in Austria, and the former Sort

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Sort grows on the *Alps* and *Apenines*, and other mountainous Parts of *Italy* and *Spain*.

These Plants may be propagated by Seeds, which should be sown in Autumn (soon after they are ripe) on a Border of fresh undunged Earth; and in the Spring, when the Plants will appear, they should be kept constantly clear from Weeds, and in very dry Weather should be watered, which will greatly promote their Growth. Where the Plants come up too close together, they should be thinned so as to leave them three or four Inches apart, which will be sufficient Room for them the first Season; and at *Michaelmas*, when their Leaves decay, some of the Plants may be carefully taken up, so as not to cut or break their Roots, and transplanted into a moist shady Border, about eighteen Inches asunder, where they may remain for good. If these Plants thrive well, they will produce Seeds the second Season, otherwise it will be the third Summer before they flower and seed; after which the Roots will abide many Years, and increase greatly in their Size, and will produce Seeds every Year.

The Culture which these Plants require, is only to keep them clear from Weeds, and every Spring, just before they put out their Leaves, to dig the Ground between them gently, so as not to injure their Roots; and when their Flower-stems are advanced, to place some Sticks down by them, to which their Stems should be fastened with Bafs, to support them from being broken down by Winds; for as these Stems rise to the Height of four or five Feet, so when their Umbels of Seeds are formed, which are generally pretty large and heavy, they often occasion

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their Stems falling to the Ground, where they are not supported.

These Plants flower the latter End of *June*, and their Seeds ripen toward the latter End of *August*, or the Beginning of *September*.

SISYMBRIUM, Water-creffes.

The Characters are:

It hath a Flower composed of four Leaves, which are placed in form of a Cross, out of whose Empalement rises the Pointal, which afterward becomes a Fruit or Pod, which is divided into two Cells by an intermediate Partition, to which the Valves adhere on both Sides, and furnished with Seeds which are roundish. To these Marks must be added, That the whole Appearance of the Plants is peculiar to the Species of this Genus.

The Species are;

1. **SISYMBRIUM aquaticum.** *Matth.* Common Water-creffes.
2. **SISYMBRIUM aquaticum, foliis minoribus, præcocius.** *Raii Syn.* Early-flowering Water-creffes, with smaller Leaves.
3. **SISYMBRIUM aquaticum, raphani folio, filiqua breviori.** *Inst. R. H.* Water-radish.
4. **SISYMBRIUM aquaticum, foliis in profundas lacinias divisis, filiqua breviori.** *Inst. R. H.* Water-radish with deeply jagged Leaves.
5. **SISYMBRIUM palustre repens, nasturtii folio.** *Inst. R. H.* Water-rocket.
6. **SISYMBRIUM palustre minus, filiqua aspera.** *Inst. R. H.* The lesser Marsh-rocket, with a rough Pod.
7. **SISYMBRIUM erucæ folio glabro, flore luteo.** *Inst. R. H.* Common Winter-crefs.
8. **SISYMBRIUM erucæ folio glabro, flore pleno.** *Inst. R. H.* Winter-crefs with a double Flower.

9. *SISYMBRIUM erucæ folio glabro, minus & præcocius. Inst. R. H.* Small early-flowering Winter-rocket.

10. *SISYMBRIUM erucæ folio aspero, flore luteo. Inst. R. H.* Winter-cress with a rough Rocket-leaf, and yellow Flower.

The first and second Sorts of Water-cresses grow promiscuously in standing Waters in most Parts of *England*, and are indifferently gathered for Use. These Plants have of late Years been generally used as Sallet-herbs in the Spring of the Year, and are by many People preferred to all other Sorts of Sallets for their agreeable warm bitter Taste; and being accounted an excellent Remedy for the Scurvy, and to cleanse the Blood, as also a good Diuretic, they have greatly obtained with most People. These are generally gathered in the Ditches, and in other standing Waters near *London*, to supply the Markets; but whoever hath a Mind to cultivate them, may easily do it by taking some of the Plants from the Places of their natural Growth, early in the Spring, being careful to preserve their Roots as intire as possible, and plant them into Mud, and then let the Water in upon them by degrees. When they have taken Root, they will soon flourish, and spread over a large Compass of Water: they should not be cut the first Season, but suffered to run to Seed, which will fall into the Water, and furnish a sufficient Supply of Plants afterward.

But where the Water is so deep, that it will not be easy to plant these Kinds, the best Method will be to get a Quantity of the Plants, just as their Seeds are ripening, and throw them on the Surface of the Water, where they are designed to

grow; and their Seeds will ripen, and fall to the Bottom, where they will take Root, and produce a Supply of the Plants. These produce Seed the latter End of *June*, or the Beginning of *July*, which is the proper Time for this Work.

The third, fourth, fifth and sixth Sorts, are Water-plants, which grow in standing Waters, and are not admitted into Gardens, except for the sake of Variety.

The seventh and ninth Sorts grow wild on dry Banks in several Parts of *England*: these were formerly used as a Winter Sallet; but since there has been a great Number of other Herbs introduced into the *English* Gardens, they have been intirely rejected. These may be propagated by Seeds, which should be sown soon after they are ripe; and when the Plants are come up, they should be houghed, to separate them where they are too close, as also to destroy the Weeds, which is all the Culture they require. The Summer following they will produce Seed, and the Plants perish soon after. But if the Seeds are permitted to scatter, the Plants will come up, and become troublesome Weeds.

The eighth Sort is a Variety of the seventh, which accidentally arose from Seeds, and is preserved in some curious Gardens, for having a double Flower. This is propagated by parting of the Roots, so that in order to preserve this Kind, the Plants should not be suffered to send forth too many Flower-stems, lest they should exhaust the Root too much to send forth any Side-heads for parting. The best Time to transplant and part these Roots, is at *Michaelmas*, when they should be planted into a Bed or Border of fresh dunged Earth, in an open exposure.

The tenth Sort is very like the seventh, from which it differs in having a rough Leaf; but may be cultivated in the same manner: tho' these are rarely allowed a Place in any Gardens, unless for the sake of Variety.

SISYRINCHIUM, Spanish Nut.

The Characters are;

It hath a Flower resembling the Iris, from which it differs in having a double Root, one lying over the other, after the same manner as those of the CROCUS and GLADIOLUS.

The Species are;

1. *SISYRINCHIUM majus, flore lutea macula notato. C. B. P.* Greater Spanish Nut, with a Flower marked with a yellow Spot.

2. *SISYRINCHIUM majus, flore alba macula notato. C. B. P.* Greater Spanish Nut, with a Flower marked with a white Spot.

3. *SISYRINCHIUM medium. C. B. P.* Middle Spanish Nut.

4. *SISYRINCHIUM Creticum montanum, angustissimo folio. Tourn. Cor.* Mountain Sisyrinchium of Candy, with a very narrow Leaf.

5. *SISYRINCHIUM Africanum, foliis longissimis, flore albo, radice venenata.* African Sisyrinchium, with very long Leaves, a white Flower, and a poisonous Root.

The three first Sorts grow wild in Portugal and Spain, where the Roots are sought after, and dug up, by Children and the Shepherds, who eat them, as also Hogs; for they are sweet, and in Taste resemble the Earth-nut. The fourth Sort was discovered in the Island of Crete by Dr. Tournefort, who sent it to the Royal Garden at Paris.

These Plants are preserved by the Curious for their Flowers, which make a fine Appearance, when they are in Beauty, which is commonly in May, or the Beginning of June,

about the same time with the bulbous Iris. The Flowers come out alternately from their Sheaths or Coverings, after the manner of the Iris; so that there is seldom more than one Flower open upon each Stalk at one time; but they succeed each other: for there are commonly four or five Flowers produced on each Stalk, when the Roots are strong. These Flowers are in some of a fine blue Colour, spotted with Yellow; and in other Sorts they are of a pale purple Colour, spotted with White.

The four first Sorts are hardy Plants, which are multiplied by Offsets, and may be treated in the same manner as the bulbous Iris, to which the Reader is desired to turn; where there are full Directions exhibited, both for the propagating them by Offsets and Seeds, with which Management these Flowers may be cultivated.

The fifth Sort was brought from Africa, where the Inhabitants use the Root to fuddle the Fish in the Rivers, in order to catch them in plenty. The green Leaves of this Sort are poisonous; for as a Tub of these Plants, which were bringing to England, was placed on the Deck of the Ship, some Hogs, getting to it, eat down all the Leaves; which swelled two of the Hogs, and killed them.

This Plant, being a Native of a warm Country, is too tender to live in this Climate, unless it is preserved in a good Stove; the Roots should be planted into Pots filled with light rich Earth, and plunged into the Bark-bed in the Stove, where if it is preserved in a kindly Warmth, the Roots will multiply greatly. The Leaves of this Sort die away in Winter, and new ones arise in the Spring; wherefore the best Time to transplant the Roots is, just before they

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they put out new Leaves, which is commonly in the Beginning of April; at which time the Bark-bed should be stirred up and renewed with some fresh Tan, and the Pots must be plunged again, and frequently refreshed with Water in warm Weather, which will make them grow very vigorous; but during the Winter Season, while the Leaves are decayed, they must not have much Wet, lest it rot the Roots.

SIUM, Water Parsnip.

The Characters are;

It hath a rose-shaped umbellated Flower, consisting of several Petals, which are commonly equal, and placed orbicularly, resting upon the Empalement, which after-ward becomes a roundish Fruit, composed of two Seeds, which are gibbous and furrowed on one Side, but plain on the other. To these Notes must be added, That the Leaves are joined together, and adhere to the Rib, with an odd Lobe at the End.

The Species are;

1. SIUM *five Apium palustre, foliis oblongis.* C. B. P. Water Parsnip, with oblong Leaves.

2. SIUM *umbellatum repens.* Ger. Emac. Creeping Water Parsnip.

3. SIUM *latifolium.* C. B. P. Broad-leaved Water Parsnip.

4. SIUM *palustre alterum, foliis serratis.* Inst. R. H. Another Water Parsnip, with sawed Leaves.

5. SIUM *foliorum conjugationibus laciniatis.* Inst. R. H. Water Parsnip with the Wings of the Leaves jagged.

6. SIUM *aquaticum, ad alas floridum.* Mor. Umb. Water Parsnip with Flowers growing at the Wings of the Leaves.

7. SIUM *minimum umbellatum, foliis variis.* Pluk. Alm. The least Water Parsnip, with variable Leaves.

8. SIUM *alterum, olusatrici facie.* Lob. Icon. Long-leaved Water Hemlock.

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9. SIUM *arvense, five segetum.* Inst. R. H. Corn-Parsley or Hone-wort.

10. SIUM *aromaticum, Sison officinarum.* Inst. R. H. Stone-parsley, or German Amomum.

The first, second, third, seventh and eighth Sorts, grow pretty common in Ditches, Ponds, and other standing Waters, in divers Parts of England; but are not cultivated, because they will not live on dry Ground. The second Sort is directed to be used in Medicine by the College of Physicians, and is esteemed very good in scrophulous Cases. The first Sort is by some People mistaken for Water-cressles, and is sometimes gathered as such and eaten, though they are very different Plants.

The eighth Sort is a very poisonous Plant, which was by Dr. Waffer taken for the Hemlock of the Ancients; who has written a large Treatise of this Plant, in which he has mention'd a Number of Instances of the noxious Quality thereof; so that it should be extirpated from Places near Habitations, to prevent any Mischief which may happen by Persons using of it, through Ignorance.

The fourth, fifth and sixth Sorts, grow in standing Waters in France, Germany, and some other Parts of Europe, but are not Natives of this Country. These are sometimes preserved in Botanic Gardens for Variety-sake, but are not used in Medicine.

The ninth and tenth Sorts grow on dry Banks, and under Hedges, in several Parts of England, but are rarely cultivated in Gardens. The ninth Sort has been by some Writers greatly esteemed for discussing hard Swellings of the Face, which by some Country People are called Hones, on account of which Quality, the Name of *Honewort* was given to this Plant. The Seeds of the tenth Sort

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Sort are used in Medicine, as one of the lesser warm Seeds. This is called Amomum by the Germans, though it is not what the Ancients meant by that Name.

All these Sorts may be cultivated by Seeds, which should be sown in the Autumn soon after they are ripe: those Sorts, which grow in standing Waters, must be scattered into such Places; but the other Sorts may be sown on a shady Border, where the Plants will come up in the Spring, and require no farther Care, but to keep them clear from Weeds, and, where they grow too close together, to thin them, so as to allow them room to grow. The second Year these Plants will produce Flowers and Seeds, soon after which the Roots will perish.

SMILAX, Rough Bindweed.

To this Article must be added;

1. SMILAX *orientalis, sarmentis aculeatis, altissimas arbores scandentibus, foliis non spinosis.* Tournef. Cor. Eastern rough Bindweed, with prickly Shoots, and smooth Leaves.

2. SMILAX *lævis, lauri folio, baccis nigris.* Catesb. Hist. Nat. Carol. Smooth Bindweed, with a Bay-leaf, and black Berries.

3. SMILAX *non spinosa humilis, folio aristolochiæ, baccis rubris.* Catesb. Hist. Nat. Car. Dwarf smooth Bindweed, with a Birthwort-leaf, and red Berries.

4. SMILAX *bryoniæ nigra foliis, caule spinoso, baccis nigris.* Catesb. Hist. Nat. Carol. Bindweed with black Briony-leaves, a prickly Stalk, and black Berries.

5. SMILAX *Caroliniana, stipite quadrato leni, foliis angustis asperis, auriculis ad basim angulosis.* Pluk. Phyt. Carolina Bindweed, with square smooth Shoots, and rough narrow Leaves, which have cornered Ears at their Base.

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6. SMILAX *foliis latis, in margine spinosis, Caroliniana, stipite leni quadrato.* Pluk. Phyt. Carolina Bindweed, with broad Leaves, having Spines on their Edges, and a smooth square Shoot.

7. SMILAX *aspera Bermudensis, grandioribus foliis cordiformibus, radice furculosa.* Pluk. Phyt. Rough Bindweed of Bermudas, with larger heart-shaped Leaves, and a Root full of Shoots.

8. SMILAX *claviculata, hederae folio, tota lævis, e Terra Mariana.* Pluk. Phyt. Smooth Bindweed with Tendrils, and an Ivy-leaf from Maryland.

9. SMILAX *viticulis asperis, Virginiana, foliis angustis lævibus, nullis auriculis prædita.* Pluk. Phyt. Virginian Bindweed, with rough Shoots, and smooth narrow Leaves, having no Ears.

10. SMILAX *Virginiana, spinis innocuis armata, latis canellæ foliis, radice arundinacea crassa & carnosa.* Pluk. Phyt. Virginian Bindweed, armed with innocent Spines, broad Cinamon-leaves, and a thick fleshy Root, called Bastard China.

11. SMILAX *Americana lævis, canellæ foliis, baccis rubris.* Smooth American Bindweed, with Cinamon-leaves, and red Berries.

12. SMILAX *aspera Americana, aristolochiæ foliis longioribus, ad basim auriculatis.* Rough American Bindweed, with longer Birthwort-leaves, with Ears at their Base, whose Root is the Zarza Parilla of the Shops.

13. SMILAX *Americana lævis, tamni folio, claviculis longioribus donatis.* Smooth American Bindweed, with a black Briony-leaf, sending forth long Tendrils.

14. SMILAX *Americana lævis, latissimo folio, auriculis ad basim rotundioribus.* Smooth American Bind

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weed, with a broad Leaf, having round Ears at the Base.

15. *SMILAX unifolia humillima*, *Inst. R. H.* The lowest Bindweed or One-blade.

16. *SMILAX aspera racemosa, polygonati folio. Inst. R. H.* Rough branching Bindweed, with a Solomons-seal-leaf.

17. *SMILAX spicata, polygonati folio. Inst. R. H.* Spiked Bindweed, with a Solomons-seal-leaf.

The first Sort here mentioned, was discovered by Dr. *Tournefort* in the *Levant*. This is a very rambling Plant, which climbs up Trees, and rises to a great Height in the Places of its natural Growth; but is an humbler Plant in this Country. This may be propagated by Seeds, or from Off-sets taken from the old Roots, and is hardy enough to live in the open Air in this Country, provided it is planted under Trees, where it may be a little protected in Winter.

The second, third, fourth, fifth, sixth, seventh, eighth, ninth and tenth Sorts, are Natives of *Carolina*, *Virginia*, and the other Northern Parts of *America*, where they grow in the Woods in the greatest Shade. These may also be propagated by Seeds or Off-sets from the old Roots, as the former. Most of these Plants are preserved in Pots in the Gardens of the Curious, but they will endure the Cold of our Winters in the open Air very well, and may be rendered ornamental by planting them under Trees in Wilderness Quarters, where they will fill up and cover the Ground, and may be disposed so as to make an agreeable Variety. These Plants require a Soil rather moist than dry; and if it be tolerably light, they will thrive much better, than in a very strong Soil.

The eleventh, twelfth, thirteenth and fourteenth Sorts, being Natives

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of the warmer Parts of *America*, are more tender than either of the former. These Sorts were discovered at *Campesby* by Mr. *Robert Millar*, Surgeon, who sent Samples of them to *England*; the Root of the twelfth Sort is the *Zarza Parilla*, which is directed by the College of Physicians to be used in Medicine.

These Sorts are propagated by Seeds or Off-sets, in the same manner as those before-mentioned; but these must be preserved in Pots, and sheltered in Winter, otherwise they will not live in this Country. As these Plants rarely produce Seeds in *England*, they are commonly increased by parting of their Roots; the best Time for doing this, is in *March*, just before they send forth new Shoots from their Roots; for although the old Shoots abide, and retain their Leaves throughout the Year, yet there are every Spring new Shoots sent forth from their Roots, which come up, like the small Shoots of *Aparagus*, with a naked Stem; but afterwards they send forth Side-branches, which are beset with Leaves. Some of these Sorts multiply greatly by their creeping Roots, which will extend to a great Distance, provided they are not confined; but when they extend their Roots very far, they seldom produce very strong Shoots, nor do they make so good an Appearance, as when they grow close and thick.

When the Seeds of these Plants are obtained from abroad, they should be sown in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed, observing to water the Earth frequently to keep it moist, because the Seeds being hard, will not vegetate without a considerable Share of Moisture, and many times remain in the Ground a whole Year, before they grow; so that if the Plants

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Plants do not come up the first Season, the Pots should be kept clean from Weeds all the Summer, and in Winter they should be sheltered from Frost under a common Frame ; the following Spring they must be again plunged into the Hot-bed, which will bring the Plants up very soon. When the Plants are come up, they must be constantly kept clear from Weeds, and frequently watered in warm Weather, and toward the End of May they should be inured to the open Air by degrees, and in June they may be removed out of the Bed, and placed abroad in a sheltered Situation, where they should remain till the Frost comes on in Autumn, when they must be removed into Shelter. These Plants should remain in the Seed-pots, till the following Spring, when they should be turned out of the Pots, and carefully separated. The tender Sorts should be planted in Pots filled with fresh Earth ; and if they are plunged into a very temperate Hot-bed, it will cause them to take new Root very soon, and greatly strengthen the Plants : but the hardy Kinds may be planted abroad under Trees, where (if they are kept clear from Weeds, until they have obtained sufficient Strength to overbear the Weeds) they will make an agreeable Variety, amongst other hardy Wood Plants.

The fifteenth, sixteenth and seventeenth Sorts, die to the Root every Year, and rise in the Spring : the fifteenth Sort is a very humble Plant, seldom rising above four Inches high ; this increases by its creeping Root, for it rarely produces Seeds in this Country. It is a very hardy Plant, and grows in Woods, but is not a Native of England. I observed it growing plentifully in a Wood near the Hague, in a moist light sandy Soil ; so that whoever would culti-

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vate this Sort, should plant it in such Situations. The best Time to transplant it, is in the Autumn, when the Leaves are decayed.

The sixteenth and seventeenth Sorts are also propagated by parting of their Roots, which may be done either in the Autumn, soon after their Leaves decay, or in the Spring before they send forth new Shoots. These Plants usually grow between two or three Feet high, and have very much the Appearance of Solomons-seal, until they produce their Flowers. These Sorts, being very hardy, will grow in almost any Situation ; but should have a fresh light Soil, inclining to Moisture.

SOLANOIDES, Bastard Nightshade.

The Characters are ;

It hath a rose-shaped Flower, consisting of five Leaves, whose Pointal afterward becomes a roundish Fruit, having one hard Seed, which is covered with a thin Pulp, so as to have the Appearance of a Berry.

The Species are ;

1. SOLANOIDES *Americana*, *circeæ foliis canescentibus*. Tourn. *American Solanoides*, with hoary Inchanters Nightshade-leaves.

2. SOLANOIDES *Americana*, *circeæ foliis glabris*. Tourn. *American Solanoides*, with smooth Inchanters Nightshade-leaves.

The first Sort was mentioned in the former Volumes of the *Gardeners Dictionary*, under the Title of *Phytolacca* ; but as Dr. Tournefort has established a new Genus in the *Memoirs of the Academy of Sciences* for these two Plants, I have taken the Liberty to place them here under their proper Name.

These Plants are Natives of the warmer Parts of *America*, from whence their Seeds have been brought into *Europe*, and the Plants are now become

become pretty common in the Gardens of the Curious. They are propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be removed, each into a separate small Pot, filled with light fresh Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun, until they have taken new Root; after which time they must have a large Share of Air admitted to them in warm Weather, and they must be constantly watered. When the Plants have obtained Strength, they should be inured to bear the open Air by degrees, and in June they should be shifted into larger Pots, and removed either into the Stove, or an airy Glass-case, where they may have a large Share of Air in warm Weather; and if they are duly watered, they will thrive and produce Flowers in July, and their Fruit will ripen in September; but there will be a Succession of Flowers and Fruit all the Winter, provided the Plants are preserved in a moderate Temperature of Heat: so that the Fruit of these Plants afford an agreeable Variety in the Stove in Winter; for being of a bright red Colour, and growing in long Bunches, they make a fine Appearance. These Plants will abide several Years, and produce plenty of Flowers and Fruit: but they should constantly remain in Shelter; for if they are exposed in Summer, they will lose their large Leaves, and appear stunted, nor will the Fruit continue on the Plants; so that the best way is, to let them remain always in the Stove, giving them a large Share of Air in Summer, which will keep them in Vigour, and render them beautiful.

The Fruit of these Plants afford a fine red Colour, when bruised; but

it soon fades on Paper, which renders it worth little. If a Quantity of these Fruit is squeezed into a Glass of fair Water, so as to colour the Water of a deep Red, and a Stem of Flowers of the Tuberose put into the Glass, it will in one Night imbibe so much of the Liquor as to variegate the Flowers with a rose Colour.

SOLANUM, Nightshade.

To this Article must be added;

1. SOLANUM *Americanum spinosum herbaceum, acanthi folio, flore amplo caeruleo.* Houst. Prickly herbaceous American Nightshade, with a Bears-breech-leaf, and a large blue Flower.

2. SOLANUM *Americanum spinosissimum herbaceum, anguriae folio, flore luteo.* Houst. The most prickly American Nightshade, with a Water-melon-leaf, and a yellow Flower.

3. SOLANUM *Americanum frutescens & spinosum, quercus folio, baccis rubris.* Houst. Shrubby and prickly American Nightshade, with an Oak-leaf, and red Berries.

4. SOLANUM *Americanum bacciferum, caule & foliis tomento incanis spinosis, flore luteo, fructu croceo.* Sloan. Cat. Berry-bearing American Nightshade, with hoary Stalks and Leaves, a yellow Flower, and saffron-coloured Fruit.

5. SOLANUM *Americanum fruticosum bacciferum spinosum, flore caeruleo.* Sloan. Shrubby berry-bearing American Nightshade, with a blue Flower.

6. SOLANUM *Americanum, frutescens & spinosum, flore magno albo.* Houst. Prickly and shrubby American Nightshade, with a large white Flower.

7. SOLANUM *Americanum, scandens & frutescens, flore magno caeruleo, fructu rubro.* Houst. Shrubby climbing American Nightshade, with a large blue Flower, and a red Fruit.

8. *SOLANUM Americanum frutescens, non spinosum, lauri folio, flore racemoso cæruleo.* Houst. Smooth shrubby *American* Nightshade, with a Bay-leaf, and blue Flowers, growing in Clusters.

9. *SOLANUM Americanum, frutescens & spinosum, foliis infra tomentosis, flore magno cæruleo.* Houst. Shrubby and prickly *American* Nightshade, with Leaves which are hoary underneath, and a large blue Flower.

10. *SOLANUM Americanum arborescens, verbasci folio, fructu flavescente majori.* Plum. Tree-like *American* Nightshade, with a Mullein-leaf, and a larger yellow Fruit.

11. *SOLANUM Bonariense arborescens, papas floribus.* Hort. Elth. Tree-like Nightshade of *Buenos Ayres*, with Flowers like the Papaw.

12. *SOLANUM Bahamense, arborescens, folio sinuato.* Hort. Elth. Tree-like Nightshade from the *Bahama* Islands, with a sinuated Leaf.

13. *SOLANUM lignosum Africanum sempervirens, laurinis foliis.* H. Amst. Woody ever-green *African* Nightshade, with Bay-leaves.

14. *SOLANUM Americanum scandens, foliis tomentosis.* Plum. Climbing *American* Nightshade, with woolly Leaves.

15. *SOLANUM Americanum scandens, aculeatum hyoscyami folio, flore intus albo, extus purpureo.* Climbing prickly *American* Nightshade, with a Henbane-leaf, and a Flower white within, and purple on the Outside.

16. *SOLANUM Americanum fruticosum, persicæ foliis, aculeatum.* Plum. Shrubby and prickly *American* Nightshade, with Peach-leaves.

17. *SOLANUM dulcamarum Africanum, foliis crassis hirsutis.* Hort. Elth. Climbing *African* Nightshade, with hairy thick Leaves.

18. *SOLANUM Americanum arborescens, non spinosum, flore parvo*

rubente, fructu aureo. Houst. Smooth *American* tree-like Nightshade, with a small reddish Flower and a Gold-coloured Fruit.

19. *SOLANUM Americanum arborescens, non spinosum, lauri folio aspero, floribus umbellatis albis.* Houst. Smooth tree-like *American* Nightshade, with a rough Bay-leaf, and white Flowers growing in Umbels.

The first, second, third, sixth, seventh, ninth, eighteenth and nineteenth Sorts, were discovered by the late Dr. *Houstoun*, near *La Vera Cruz*, in *America*, from whence he sent their Seeds to *England*, many of which have succeeded in several curious Gardens, where the Plants are now growing.

The two first Sorts, being annual Plants, rarely produce ripe Seeds in *England*; but the others are abiding Plants, which flower every Year, and sometimes they perfect their Fruit in this Country.

These being Natives of a warm Country, must be raised on a Bed early in the Spring; and when they are fit to transplant, they must be each planted in a separate small Pot filled with fresh rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun until they have taken new Root; after which time, they should have a large Share of fresh Air admitted to them in warm Weather, and they must be plentifully watered. Toward the latter End of *June*, it will be proper to harden the Plants to endure the open Air; and soon after they should be removed into the Stove, where they must have as much free Air as possible in warm Weather; but as the Cold approaches in Autumn, they must be carefully protected therefrom, and in Winter they should be kept in

in a moderate Temperature of Warmth, otherwise they will not live in this Country.

Some of these Sorts will bear to be exposed in the open Air, in the Heat of Summer, provided they are placed in a warm Situation; but if the Season should prove cold, they will not thrive abroad: wherefore it will be the better Method to let them remain in the Stove, and open the Glasses in Front, and at the Top of the Stove, every Day, to admit as much Air as possible in hot Weather: with which Management they will thrive much better than in the open Air.

The fourth and fifth Sorts were discovered by Sir *Hans Sloane* in *Jamaica*, where they grow in plenty. The Seeds of these were also sent to *England* by the late Dr. *William Houstoun*.

The eighth Sort was discovered by the late Dr. *William Houstoun*, at *Campechy*, where it hath since been found in great plenty by Mr. *Robert Millar* a Surgeon, who sent the Seeds to *England*.

The tenth, fourteenth, and fifteenth Sorts, were discovered by Father *Plumier*, in some of the *French* Settlements in the *West-Indies*, and have since been found by Mr. *Robert Millar*, near *Carthage* in *America*, from whence he sent their Seeds.

The eleventh Sort was sent from *Buenos Ayres*, and the twelfth Sort is a Native of the *Bahama* Islands.

All these being Natives of warm Countries, must be treated in the same manner as hath been directed for the former Sorts, otherwise they will not thrive in *England*.

The thirteenth and seventeenth Sorts, being Natives of the *Cape of Good Hope*, are less tender than any of the other Kinds. These must be preserved in Pots, and placed in a

good Green-house in Winter, where they should have a large Share of free Air in mild Weather; but must be secured against Frost, during the Winter Season. These Plants will require to be frequently refreshed with Water, but in cold Weather it must be given to them in moderate Quantities; and in Summer the Plants should be placed in the open Air, in a warm sheltered Situation; during which Season, they will require a more plentiful Supply of Water in dry Weather; for they are thirsty Plants, as are all of this Tribe.

The climbing Sorts of Nightshade may be propagated by Cuttings, which should be taken off in *May*, and those of the tender Kinds should be planted in Pots filled with fresh Earth, and plunged into a Hot bed of Tanners Bark, where they should be carefully screened from the Heat of the Sun every Day, until they have taken Root; after which time they may be treated in the same manner, as those Plants which come from the Seeds. But the seventeenth Sort, which is more hardy, will not require so much Care; for if the Cuttings of this Kind are planted in a shady Border, they will take Root, and may be afterwards taken up and potted, and placed in a warm Situation in the open Air till *October*, when they must be removed into the Green-house for the Winter Season.

These Plants, when they thrive well, and produce plenty of Fruit, make an agreeable Variety amongst other Exotic Plants, in the Stove and Green-house, especially in the Winter Season; at which time they commonly have plenty of Fruit, which make a pretty Appearance, when there are not many other Plants in Beauty. And some of these Sorts, whose Flowers are large, and of beautiful

beautiful Colours, make a fine Appearance, and are worthy of a Place in the Stove, though they do not constantly produce Fruit in this Climate, especially the first Sort, whose Flowers are very large, and of a fine blue Colour; and the eighth Sort, whose Flowers, though small, yet being produced in long Clusters, and being of a fine blue Colour, make a fine Appearance; and these frequently flower in the Winter Season.

SOLDANELLA, Soldanel.

The Characters are;

It hath a bell-shaped Flower, consisting of one Leaf, which is for the most part fringed; the Pointal, which arises from the lower Part of the Empalement, afterward becomes a Fruit of a cylindrical Figure, opening at the Top, and full of Seeds, which adhere to a Placenta.

The Species are;

1. **SOLDANELLA Alpina rotundifolia**. C. B. P. Round-leaved Soldanel of the Alps.

2. **SOLDANELLA Alpina rotundifolia, flore niveo**. C. B. P. Round-leaved Soldanel of the Alps, with a snow-white Flower.

3. **SOLDANELLA Alpina, folio minus rotundo**. C. B. P. Soldanel of the Alps, with a Leaf less round.

These Plants grow on the Alps, and several other mountainous Places of Italy, Germany and Hungary, from whence they have been obtained by some curious Persons, who preserve them in their Gardens for the sake of Variety. They are Plants of humble Growth, seldom rising above six or eight Inches high; their round Leaves grow close to the Ground, from between which the Flower-stems arise; each of which have four or five Flowers, which in the first Sort are of a fine blue Colour, but the second of a Snow-white, which hang down and are shaped

like Bells. They flower the latter End of April, or the Beginning of May, and their Seeds are ripe in July.

The best Method to propagate these Plants, is, by parting of their Roots, because their Seeds do not succeed, unless they are perfectly ripe, and well nourished, and this rarely happens in England: nor do the Seeds which are brought from abroad, succeed; for they seldom grow, unless they are sown soon after they are ripe.

The Season for transplanting and parting of these Roots is in September, that they may have time to make good Roots before Winter; for if they are removed in the Spring, they never flower very strong; and if the Season should prove dry, the Plants will decay, unless they are constantly supplied with Water.

The Soil in which these Plants thrive best, is a strong cool Loam, and they must have a shady Situation, for if they are exposed to the Sun, they will not live, nor will they thrive in a warm light Soil. In dry Weather these Plants should be frequently watered, which will cause them to flower strongly, and make a good Increase.

If the Seeds ripen in England, and any Person is desirous to propagate the Plants that way, they should be sown in Boxes or Pots, filled with fresh loamy Earth, soon after they are ripe; and the Boxes must be placed in a shady Situation, and frequently watered in dry Weather. The Plants will sometimes appear the same Autumn the Seeds are sown, but more frequently they do not come up till the following Spring; so that the Earth must not be disturbed, nor Weeds permitted to grow in the Boxes. When the Plants come up, they must be duly watered.

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watered in dry Weather, and constantly placed in a shady Situation. The following Autumn, the Plants should be taken out of the Boxes, and planted in a shady Border, about six or eight Inches asunder, where they may remain to flower; or they may be intermixed with other low *Alpine* Plant in North Borders, where they will make an agreeable Variety.

SORBUS, The Service Tree.

To this *Article* must be added;

1. *SORBUS sativa, fructu ovato, medio rubente. Hort. Cath.* The manured Service, with an oval Fruit, which is red within.

2. *SORBUS sativa, magno fructu turbinato, pallide rubente. Inst. R. H.* The manured Service, with a large turbinated Fruit of a pale red Colour.

3. *SORBUS sativa, magno fructu nonnihil turbinato rubro. Inst. R. H.* The manured Service, with a large red Fruit not turbinated.

4. *SORBUS sativa, fructu turbinato, omnium minimo. Inst. R. H.* The manured Service, with the least Fruit.

5. *SORBUS orientalis, fraxini folio. Tourn. Cor.* Eastern Service, with an Ash-leaf.

6. *SORBUS orientalis, fructum magno, compresso & flavescente. Tourn. Cor.* Eastern Service, with a large flat yellowish Fruit.

The four Sorts first-mentioned are very common in the *Italian* Gardens, and lately have been brought into *England* by the Persons who bring over Orange-trees, &c. so that in a few Years they may be common in *England*. But the great Difficulty is in keeping of the Sorts; because when these Trees are propagated by Seed, they vary as much in their Kinds as Apples and Pears. And it is very difficult to propagate them by grafting or budding; for they sel-

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dom succeed when grafted on Pear, Apples, or Medlars; and it is not easy to raise Stocks of their own Kind, for the Fruit do not always ripen in this Country.

The fifth and sixth Sorts were discovered by Dr. *Tournefort* in the *Levant*, but at present they are not in the *English* Gardens. These Sorts may be all propagated by Seeds, after the manner directed in the former Volumes of the *Gardeners Dictionary*. The best way to procure good Seeds of these Plants, is to have the Fruit, when duly ripened abroad, put up in Boxes of Sand, and sent over; by which Method they may be brought over very well: for if the Fruit should rot, the Seeds will remain good by being preserved in Sand.

SPARTIUM, Broom.

To this *Article* must be added;

1. *SPARTIUM orientale humile, fructu villosa & rostrato. Tourn. Cor.* Dwarf Eastern Broom, with a hairy beaked Fruit.

2. *SPARTIUM orientale, siliqua compressa, glabra & annulata. Tourn. Cor.* Eastern Broom, with a flat, smooth, circular Pod.

3. *SPARTIUM Americanum, portulacæ foliis, aculeatum, ebeni materie. Plum.* Prickly American Broom, with Purslane-leaves, whose Wood is taken for Ebony.

4. *SPARTIUM Americanum scandens, citri foliis, floribus albis, ad nodos confertim nascentibus. Plum.* Climbing American Broom, with Citron-leaves, and white Flowers, which are produced in Bunches at the Joints.

The two first Sorts were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*. These Plants are as hardy as the common Sorts mentioned in the former Volumes of the *Gardeners Dictionary*.
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They are propagated by Seeds, which should be sown in the Spring on a moderate Hot-bed, as hath been directed in the former Volumes for the two common Sorts, and the Plants must also be managed in the same manner.

The third Sort is very common in *Jamaica*, and several other Places in the *West-Indies*, where the Wood is cut, and sent to *England*, under the Title of *Ebony*, though it is not the true black *Ebony*, which is a Native of the Eastern Country, and is a Plant of a very different Genius. The Wood of this *American Ebony* is of a fine greenish brown Colour, and polishes very well; on which account it is much coveted by the Instrument-makers, and is used for several Purposes, being of a very hard, durable Nature.

The fourth Sort is pretty common in the *Spanish West-Indies*, from whence I have received the Seeds, which were collected by Mr. *Robert Millar*. This is a climbing Plant, which will twist round whatever Trees grow near it, and will rise to a great Height. The Leaves of this Plant are thick and strong, somewhat resembling those of the Citron-tree; and continuing green the whole Year, they make an agreeable Variety in the Stove, amongst other tender Exotic Plants.

These Plants are propagated by Seeds, which must be procured from the Countries of their natural Growth; for they do not produce Seeds in this Climate: these Seeds should be sown in Pots filled with light fresh Earth, early in the Spring, and plunged into a good Hot-bed of Tanners Bark, where they should be frequently refreshed with Water; and if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats to keep the Bed

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in a good Temperature of Warmth: in the middle of the Day, when the Sun shines warm, the Glasses should be raised to let the Steam of the Bed pass off, as also to admit fresh Air. In about a Month after the Seeds are sown, the Plants will appear, when they must be carefully treated (being very tender while young); they must have fresh Air admitted to them every Day, when the Weather is warm, and should be frequently refreshed with Water, when the Earth in the Pots appears dry. In about five or six Weeks after the Plants appear, they will be fit to transplant, when they should be carefully shaken out of the Pots, and separated, planting each into a small Pot filled with light fresh Earth, and then plunge them into the Hot-bed again, being careful to shade them from the Sun every Day, until they have taken new Root; after which time they must be treated in the same manner as other very tender Exotic Plants, by giving them Air every Day in warm Weather, and watering them every other Day gently, and when the Nights are cold, to cover the Glasses. In this Hot-bed the Plants may remain till Autumn, when they must be removed into the Stove, and plunged into the Bark-bed: those of them whose Roots have filled the Pots, should be carefully shifted into Pots one Size larger, before they are plunged; but as these Plants are not of quick Growth while young, they do not require to be often shifted out of the Pots. During the Winter Season these Plants must be kept very warm, (especially the first Year) and they must be frequently refreshed with Water; but in cold Weather it must be given to them in small Quantities, and if their Leaves should contract Filth, they must be washed with a Sponge to clean them, otherwise

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wife the Plants will not thrive. As these Plants are very tender; they will not live in the open Air in this Country, even in the warmest Part of the Year; therefore they must be constantly kept in the Stove, and should be plunged in the Bark-bed, observing in the Summer Season, when the Weather is warm, to admit a large Share of fresh Air to the Plants, but in Winter they must be kept very warm. With this Management, the Plants will thrive very well, and in a few Years will produce their Flowers, when they will make a pretty Appearance in the Stove.

SPERGULA, Spurrey.

The Characters are;

It hath a rose-shaped Flower, consisting of five Leaves, which are included in a five-leaved Empalement; in the Centre of the Flower, arises the Pointal, which afterward becomes a roundish membranaceous Fruit, which opens in three Parts, and is filled with small Seeds, which in some Species have a Border round them.

The Species are;

1. SPERGULA. J. B. The common Spurrey.

2. SPERGULA *marina nostras*. J. B. The Sea Spurrey.

3. SPERGULA *purpurea*. J. B. Purple Spurrey.

4. SPERGULA *minima, seminibus marginatis*. The least Spurrey, with bordered Seeds.

These Plants grow wild in several Parts of England: the second Sort is found on the Sea Shores, where the Salt-water usually flows; but the other Sorts grow on sandy Commons, and amongst Corn in great Plenty.

The first Sort is cultivated in Holland and Flanders, of feeding their Cattle; the usual Time of sowing the Seed is in August, that the Plants

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may have Time to get Strength before the Winter's Cold. The Use that is made of this Grass, is to feed Sheep and other Cattle in Winter, when the common Grass hath done growing. This Plant, seldom rising above six Inches high, will not afford a very great Quantity of Food; but as it will grow on the poorest Sand, it may be cultivated in many Places to good Advantage, where no other Grass will thrive so well; and by feeding it off the Ground, the Dung of the Cattle will improve the Land. This Pasture, as is affirmed, will make excellent Butter; and the Mutton fed on it, is said to be well tailed; wherefore it is by many preferred to that fed on Turneps. Hens greedily eat this Herb, and it makes them lay more Eggs.

This Plant being annual, must be sown every Year, and whoever is willing to save the Seeds, should sow it in April, that the Plants may flower the Beginning of July, and the Seeds will ripen in August; when it must be cut before the Heads are quite brown, otherwise the Seeds will soon scatter.

The Seeds being very small, about twelve Pounds, will be sufficient to sow an Acre of Land. The Ground should be well dressed before the Seeds are sown; for if the larger Clods are not broken, there will be an uneven Crop of Grass. People in the low Country sow this Seed, after a Crop of Corn is taken off the Land. The fourth Sort is now much cultivated in Flanders, though it is a much lower Plant than the common Sort; but they esteem it a much better Grass. The Seeds of this Kind are smaller and flatter than those of the common Sort, and have a white Border round each.

SPHONDYLIIUM, Cow-parfnep.

The Characters are ;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of five uneven heart-shaped Leaves, which are placed circularly, and rest on the Empalement ; which afterward becomes a Fruit, composed of two large Seeds, which are flat and oval, having a Point that wants a Border within, channelled, and generally casting off their Cover, and marked with dark Spots, on the Part where they adhere to each other.

The Species are ;

1. SPHONDYLIIUM *vulgare hirsutum*. C. B. P. Common hairy Cow-parfnep.

2. SPHONDYLIIUM *vulgare hirsutum, floribus purpureis*. C. B. P. Common hairy Cow-parfnep, with purple Flowers.

3. SPHONDYLIIUM *majus, five panax Herculeum quibusdam*. J. B. Greater Cow-parfnep, or Hercules's All-heal.

4. SPHONDYLIIUM *crispum*. J. B. Curled Cow-parfnep.

5. SPHONDYLIIUM *hirsutum, foliis angustioribus*. C. B. P. Hairy Cow-parfnep, with narrower Leaves.

6. SPHONDYLIIUM *foliis angustioribus, atro-purpureis*. H. R. *Monsp.* Cow-parfnep with narrower dark-purple Leaves.

7. SPHONDYLIIUM *Alpinum parvum*. C. B. P. Small Cow-parfnep of the Alps.

8. SPHONDYLIIUM *Alpinum glabrum*. C. B. P. Smooth Cow-parfnep of the Alps.

9. SPHONDYLIIUM *orientale maximum*. Tourn. Cor. Greatest Eastern Cow-parfnep.

10. SPHONDYLIIUM *orientale, amplissimo folio, caule brevi*. Tourn. Cor. Eastern Cow-parfnep, with a very large Leaf, and a short Stalk.

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11. SPHONDYLIIUM *orientale, longissimo & angustissimo folio*. Tourn. Cor. Eastern Cow-parfnep, with a very long, and very narrow Leaf.

12. SPHONDYLIIUM *orientale angustifolium glabrum, arisum olens*. Tourn. Cor. Smooth narrow-leaved Eastern Cow-parfnep, smelling like Anise.

13. SPHONDYLIIUM *orientale, foliis ammi perennis*. Tourn. Cor. Eastern Cow-parfnep, with perennial Bishops-weed-leaves.

14. SPHONDYLIIUM *orientale humilissimum, foliis absinthii*. Tourn. Cor. Dwarf Eastern Cow-parfnep, with Wormwood-leaves.

15. SPHONDYLIIUM *orientale, dauci vulgaris folio, asphodeli radice*. Tourn. Cor. Eastern Cow-parfnep, with a common Carrot-leaf, and an Asphodel-root.

The first and fifth Sorts grow wild in England ; the first is very common on the Sides of Ditches, and the Borders of Fields, in moist Land every-where. The other Sorts are not Natives of this Country, but are many of them preserved in Botanic Gardens, for the sake of Variety.

They are all very hardy Plants, which may be propagated by Seeds : the best Time for sowing them, is in Autumn, soon after the Seeds are ripe. They should be sown where the Plants are designed to remain, because they send forth tap Roots, somewhat like those of the Parsnep ; wherefore they do not thrive so well when transplanted, as if suffered to remain where they are sown. The Plants growing very large, the Seeds should be sown in Drills, at two Feet and a half Distance ; and in the Spring, when the Plants appear, they should be thinned, so as to leave them at least eighteen Inches asunder in the Rows ; after which they will require no farther Care,

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but to keep them clear from Weeds ; and when the Plants have obtained Strength, they will not easily be injured by Weeds ; for they will over-lear them, and prevent their getting up. The second Year these Plants will produce Flowers and Seeds, and their Roots will abide many Years, and produce Seeds every Year, which if permitted to scatter, will fill the neighbouring Ground, and become troublesome Weeds.

The third Sort (which is very common in *Germany*) hath been, by some of the *German* Writers, taken for the *Acanthus* or *Bears-breech*, and the same Qualities applied to it.

The Name of Cow-parsnep was given to this Plant, from the Cows eating of it ; but they do not chuse to eat the Leaves of this Plant, if they can get any other Food, as may be observed in the Fields where the Plant is in great Plenty ; for the Cows will eat the Grass very close about these Plants, tho' they are rarely found to be touched by them, unless when the Grass is burnt up. Rabbits will eat the Leaves of this Plant, and seem fond of it.

SPIRÆA.

To this *Article* must be added ;

SPIRÆA Hispanica, hyperici folio crenato. Inst. R. H. Spanish Spiræa, with a notched *St. Johns-wort*-leaf, commonly called *Hypericum frutex*, with a notched Leaf.

This Shrub is equally hardy with the common Sort, and rises to the same Height ; wherefore it may be disposed in the same manner in Plantations of flowering Shrubs. It may be propagated by laying down the Branches, or by Suckers from the Root, as hath been directed for the common Sort, in the former Volumes of the *Dictionary*.

STAPHYLODENDRON, Bladder-nut.

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To this *Article* must be added ;

1. *STAPHYLODENDRON Americanum, foliis lauri angustis. Plur. Cat. American Bladder-nut*, with narrow Bay-leaves.

2. *STAPHYLODENDRON Americanum trifoliatum, foliis incisis. Houss. Three-leaved American Bladder-nut*, with cut Leaves.

The first Sort is pretty common in *Jamaica*, *Barbadoes*, and some other Places in the warm Parts of *America* ; where it usually rises to the Height of ten or twelve Feet, and produces its Branches regularly, which are beset with Leaves, shaped in some measure like those of the Bay-tree ; but are narrower, and full of Veins, and of a lighter green Colour : the Flowers are small, and of an herbaceous Colour ; which are succeeded by flat Bladders, having a Border round them, and inclosing two or three roundish Seeds.

It may be propagated by Seeds, which should be sown early in the Spring, on a moderate Hot-bed, and when the Plants are come up, they should be frequently refreshed with Water, and kept clear from Weeds, until they have obtained Strength enough to transplant ; when they should be carefully taken up, and each planted into a separate small Pot filled with fresh light Earth, and then plunged into a Hot-bed of Tanners Bark, where they must be carefully shaded until they have taken new Root ; after which time they should have free Air admitted to them every Day in warm Weather, by raising the Glasses of the Hot-bed ; and they must be constantly watered every other Day, during the Summer Season. If the Plants thrive, they will fill the small Pots with their Roots by the Beginning of *July* ; when they must be shaken out of the Pots, and their Roots trim-

med, and then put into Pots a little larger, which should be filled with fresh light Earth, and then plunged again into the Hot-bed, to facilitate their making new Roots; but after this, they should have a larger Share of Air to harden them before Winter. At *Michaelmas*, when the Nights begin to be cold, the Plants should be removed into the Stove; where, during the Winter Season, they should be kept in a moderate Temperature of Warmth, and must be frequently refreshed with Water; but it should be given to them in small Quantities, when the Weather is cold. The following Summer the Plants should be by degrees inured to bear a large Share of Air; but while they are young, they should not be intirely exposed abroad, tho' when the Plants are become woody, they will bear to be set abroad every Summer, in a warm sheltered Situation, and in Winter will live in a good Green-house, without any artificial Heat. This Plant doth frequently produce Flowers in this Country, and in warm Seasons will sometimes perfect Seeds. It continues green throughout the Year, and will make an agreeable Variety in the Conservatory in the Winter Season, for which it is chiefly preserved.

The second Sort was discovered by the late Dr. *William Houstoun*, at *Campechy*; this Sort hath weak flexible Branches, and doth not make a regular Stem like the former, but forms itself into a rude Bush. The Flowers of this Kind are produced in Bunches, at the Extremity of the Branches, which are succeeded by compressed Bladders, very like those of the former Sort.

This Kind may be propagated by Seeds, which must be sown as hath

been directed for the former Sort, and the Plants must be treated much after the same way; but as these are somewhat tenderer than those, they should not be exposed abroad in Summer, nor will they live thro' the Winter, unless they are preserved in a moderate Degree of Warmth.

STOVE.

Since the Publication of the former Volumes of the Dictionary, there hath been a great Number of Stoves built in *England*; and these have been projected in different manners, according to the several Plants which they were designed to contain: so that there have been very great Improvements made in these Contrivances, but especially in the Stoves for the Ananas or Pine-apple, which Fruit is now pretty commonly cultivated in the *English* Gardens, and the Method of cultivating them more generally known; so that the Expence of maintaining them is greatly diminished. But notwithstanding what has been by some affirmed, *viz.* that they may be propagated in Hot-beds without any Stoves; yet, from a Number of Trials, I am convinced, that is a more expensive Method, and attended with a much greater Uncertainty, than when they are kept in Stoves: for in those Hot-beds, when foggy cloudy Weather happens, which is too frequent in the Winter Season in this Country, there must be an extraordinary Care taken to prevent the Damp (which will at such times be very great in the Beds) from rotting the Plants; and in very cold Weather, these Beds must be lined round the Sides with hot Dung, to keep a Warmth in the Bed; and this must be repeated three or four times in a Winter, according to the Cold of the Season, without which the Plants will not thrive: so that

the Trouble of doing this is very great; and where Dung is scarce, is also expensive, and in this Method there is no Certainty of having any Quantity of Fruit: for I have observed, where the Plants have been thus managed, few of them have produced Fruit, and some Years they have intirely miscarried, whereas those in Stoves do seldom fail, when the Plants are of a proper Size for bearing. And after the first Expence of building the Stove, the Charge is not very great to maintain the Plants; for a small Quantity of Fewel will be sufficient to warm a Stove, which is capable of containing fourscore or a hundred Plants; and a less Quantity of Tan will be required for them, than when they are kept in Frames. In a Stove of twenty-four Feet long, and about eight Feet broad, (exclusive of the Flues) may be placed about one hundred Plants to bear Fruit (provided they are planted in the Tan, which is found to be the best Method, and of which I shall give a particular Account hereafter). This Stove may be kept warm during the Winter Season, with two Chaldron and a half, or at most three Chaldron of Coals, or with any other Sort of Fewel in proportion: but where Coal can be had at an easy Expence, it is much the best Fewel, because the Smoak of this will keep warm much longer than of any other Fewel; consequently will heat the Flues much more, and it will make much less Soot, than Turf or any such Fewel; which is an Advantage, because the Flues will not require to be so often cleaned.

I shall now proceed to give a Description of two Sorts of Stoves, which have of late been invented for the Ananas, in both which they are

found to succeed equally. The first of these Stoves has but one Slope of Glasses, from the Top to the Plate, which is raised about a Foot above the Level of the Ground (provided the Soil is dry; otherwise it must be advanced higher, so as that the Bark-pit may not descend so low as to be ever troubled with Water, which would cool the Tan, and spoil the Bed). The other Sort of Stove has upright Glasses in Front, about four Feet high; and from the upper Part of these, are sloping Glasses, which run up to the Top. The Design of these upright Glasses in Front, is to admit of a small Walk between the Bark-pit and the Glasses, for the more convenient passing round the Plants to water them, &c. which in other Stoves cannot be done; so that the Glasses must be opened to come at the front Row of the Plant, whenever they want to have any thing done to them: tho' as to the watering of the Plants, that may be very well performed, from the Walk on the Back of the Tan-bed, with a long-spouted Watering-pot; so that there will be no Necessity of opening the Glasses, but on particular Occasions. These small Stoves, with one Slope of Glasses, are contrived to save Expence, and where Persons are confined for Room. And as they contain a much less Quantity of Air than the other Stoves, a smaller Quantity of Fewel will keep them warm; but the other, being the more commodious, is by many People preferred to these. However, I shall give as plain Directions as possible, for the Building both these Kinds of Stoves; which, with the annexed Plates, will be sufficient Instructions for any Person, who is the least skilled in Buildings, to make either of the Stoves.

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The first Plate contains a Plan of the small Stove, with one Slope of Glasses, with a Section of the Flues, a Plan of the Tan-bed, and of the Furnace, with the sloping Glasses. The Length from-out to-out of this Stove, is twenty-four Feet; and the Width eleven Feet. The Walls in Front, and at each End, are one Brick and a half in Thickness, and the back Wall must be two Bricks thick, in order to throw the Heat into the House, because to this Wall the Flues are built. The Pit, which contains the Tan, is the whole Length of the Building, and six Feet wide; but the Depth need not be more than two Feet and a half, which will hold a sufficient Quantity of Tan, to contain a moderate Warmth so long as is necessary. This Pit should be brick'd at bottom, to prevent the Earth mixing with the Tan; the Wall in Front of the Stove, as also those at each End, to encompass this Pit three ways, must be one Brick and a half thick; and there must be a nine Inch Wall carried up on the Back-side, to which the Wall which sustains the Flues, will almost join; for in carrying up the back Wall of the Stove, it will be proper to make the Foundation so broad, as to include the Width of the Flues, (which must be two Feet nine Inches) that the Work may settle equally. From this Foundation, to the Side of the Bark-pit, there will be two Feet, including the nine Inch Wall of the Pit; so that the other fifteen Inches may be filled up with Rubbish, to save the Expence of Bricks, since it is only to support the Pavement of the Walk. In carrying up the back Wall of the Stove, the Flues should also be carried up with it, that the Covering of each Flue may be joined into the solid Brick-work of the Wall. The

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lower Part of the bottom Flue should be level with the Pavement of the Walk, that the Heat may be intirely above Ground. The Depth of the first Flue should be two Feet, because in this the greatest Quantity of Soot will lodge; and the Width must be as much as a Foot-tile may reach to cover, which may be about ten Inches; for if the Tiles have an Inch on each Side bearing, it will be sufficient, since they are not to support any Weight; but where the Flues are covered with flat Stones, which will admit of their being made wider, it will be proper to allow them fifteen Inches wide, which give better Room to cleanse them. The Wall in Front of the Flues, within-side of the House, should not be above four Inches thick, that the Smoak, in passing thro' the Flues, may send the Heat more easily into the Stove. The other three Flues should be eighteen Inches deep, and all of them the same Width of the lower one; which will be large enough for a Chimney-sweeper to go thro' them, to cleanse them of the Soot, whenever they are foul. These Flues turning four times (as in the annexed Plan) will rise almost to the Top of the Stove; for as the Use of these Stoves is to contain Ananas, which are low Plants, so if there is but Height enough for a Man to walk upright on the Walk at the Back-side of the House, between the Pit and the Flues, it will be sufficient; for the lower the Stoves are built, the less Quantity of Fewel will keep it warm in Winter: but as it will be necessary to build the Back-wall six Feet and a half high to contain the Flues, so by raising it one Foot higher, there will be upward of six Feet in Height, notwithstanding the Slope of the Front. The Flues should be well plastered with

Loam and Dung within-side, which should be laid as smooth as possible, that the Smoak may not be the least obstructed in its passing thro' them; and when they are carried quite up, the Whole should be plaistered on the Side within the Stove, with Lime and Hair, and covered closely with Hop-bags, or other coarse Cloth, after the manner Coppers are usually done, which will prevent the Smoak from getting thro' into the Stove, and fasten the whole Work together.

In the Front-slope, the Glasses need not be carried to the Top of the Building; but the upper Part may be boarded, and covered either with Slates or Lead, about three Feet and a half below the Top, which will cover the Flues and the Walk; so that the Glasses, which must run up just under this Covering, will extend over the Bark-bed, and the Plants will enjoy the full Advantage of the Sun and Light.

On the Back-side of the Stove, at one End, must be built a small Shed, in which the Furnace must be placed, which should be sunk so low, as that the Top of the Oven may be ten Inches or a Foot below the first Flue, which will occasion a good Draught to the Smoak. This Oven need not be very large for these small Stoves; about sixteen Inches wide, and twenty Inches long within-side, will be sufficient. To this Oven there must be an iron Door, somewhat like those for Coppers; and under the Oven there must be an Ash-hole, to which there should also be another Door, that when the Fire is thoroughly lighted, may be shut to prevent the Fuel from burning away too fast. This Oven should be built with the best Materials, otherwise it will often want Repairing, which is what should

be avoided as much as possible: for the Trouble of doing it is pretty great; beside, the often pulling down of the Oven, will impair the other Brick-work into which it is joined.

At the other End of the Stove should be a Door, which should open outward, for the Convenience of getting into the Stove, which must be made of double Deal, and contrived to shut as close as possible, to prevent the Air from getting into the Stove to cool it. This Door is also of Use to open to give Air to the Plants in Summer, at such times, when it may be improper to open any of the Glasses. For the better understanding of the whole Contrivance, the annexed Plate, it is hoped, will be sufficient; wherefore I shall proceed to describe the other Sort of Stove, with upright Glasses in Front.

The Stoves which are built with upright Glasses in Front, are more convenient than the others, as they admit of a small Walk in the Front of the Bark-bed; so that the Plants may be easier watered, and whenever there is any thing to be done to the Plants, it may be performed better, as there will be a Passage quite round the Tan-bed. The Length of these Stoves may be in proportion to the Number of Fruit desired; but they should not exceed forty Feet, unless there are two Ovens contrived for Fire to warm them; for one Fire-place will not warm a greater Length of Stove, to such a Degree of Heat as is necessary to keep the Ananas in good Health: therefore I have chosen to make the annexed Plan of this Length. The Width of the Stove is twelve Feet from-out-to-out, the Bark-pit is seven Feet over, and the Walk between the Bark-bed and the Front-glasses, as also at the two Ends, is one Foot broad; which will

will afford sufficient Room to pass round the Bed, to water, or do what is necessary to the Plants. The Walk on the Back of the Stove, between the Bark-bed and the Flues, is two Feet broad; which will be commodious enough for any Purposes, since in these Buildings, their Use is chiefly consulted; for when they are too wide, there requires more Fuel to warm them, and there will be a greater Quantity of Glass-work, which is not only an Expence in the first Building, but will be an annual Charge to keep in Repair.

The upright Glasses in the Front of the Stove, are five Feet high; and being raised at the Bottom, about six Inches above the Walk, will be high enough to admit a Person to pass round to water the Plants; for if these Glasses are taller, it will be more difficult to reach the upper Glasses to draw them down to admit the Air to the Plants in hot Weather. The sloping Glasses, which run up to the Top of the Stove, being near twelve Feet in Length, are divided into two Ranges, which will render them more handy to move, and they will be much stronger, than if they were only in one Range. From the upper Part of these Glasses there is a Penthouse, which slopes to the Back of the Stove, and projects so forward, as to cover the Flues and the back Walk of the Stove; so that the Glasses will reach as far as the Width of the Tan-bed, to admit Air and Sun to the Plants.

The Oven for this Stove should be two Feet square in the Clear, to contain a larger Quantity of Fuel than those of the small Stoves, because the Stove being larger, will require a greater Fire to warm it. The Contrivance of the Oven, and the Flues, being the same as in the

small Stove, need not be repeated here.

Where a Person is desirous to have a large Quantity of Fruit of the Ananas every Year, the best way to effect it, will be to have one of each of these Stoves, the largest of them to fruit the Plants; which if made of the Dimension here described, will contain about two hundred Plants when full grown; and in the small Stove, the young Plants may be brought on to supply the large Stove; which is a much surer and less troublesome Method, than to keep the young Plants under Frames without Fire in Winter, as is by some practised.

But those Persons who may think the Expence too great to build two Stoves, may contrive a Frame to raise the young Plants in; which if made of Brick-work, may have two Flues carried in the Back-wall above the Tan-bed, which may be heated in Winter with a small Quantity of Fuel; for as the Frame need not be more than three Feet high above the Tan-bed on the Back-side, the Quantity of Air contained in such a Frame may be warmed at a small Expence: and as the Glasses may be covered with Mats in cold Weather, the Frost will not cool the Air so much as where the Glasses have no Covering. If these Frames are built on dry Ground, the Bark-pit may be sunk below the Surface of the Ground, which need not be more than two Feet and a half, and the Wall in Front must be about sixteen Inches above the Ground; but the Back-wall must be three Feet high, which will make a Declivity sufficient to carry off the Rain. Upon the Walls must be fixed a Plate of Timber, about six Inches thick, into which the Gutters, on which the Glasses are to slide, must be fixed;

so that the Glasses will be raised on the Back-side, about three Feet and a half above the Surface of the Bark-bed, and about twenty-two Inches in Front, where the smallest Plants should be plunged, and the largest Plants must be plunged backward; whereby they will fall in a regular Slope, proportionable to the Glasses; so that the Plants in every Part of the Bed may be nearly at an equal Distance from the Glasses.

At one End of this Frame must be the Oven to make the Fire, which should be sunk intirely below the Surface of the Ground, that there may be a Draught for the Smoak; but this must be shedded over to exclude the Rain, and inclosed so as to keep out the Wind; for if the Fire is exposed to the open Air, it cannot be kept regular. Therefore the best Method is to carry up the Shed with Brick-work, nearly the Height of the Back-wall, which may be covered with Tiles, and have a small Door to it, just sufficient for a Man to enter to put on the Fuel. This Shed need not be above four Feet square; for the Oven should not be more than fourteen Inches square in the Clear, which will contain as much Fuel as is necessary to warm this Frame. But this Oven must be intirely built in the Shed, and a Cavity carried up from the Bottom, between the Oven and the Bark-bed; otherwise the Fire will dry the Tan, and it will be in great Danger of taking Fire, when the Bricks are thoroughly heated.

The Length of the Frame should not be more than twenty-four Feet, and the Width six Feet, which will hold a sufficient Number of young Plants to fill the large Stove, when they are fully grown, and one Fire-place will be sufficient to warm the Air contained herein. The two

Flues of this Frame must be carried one over the other, in the same manner as in the Stove: the lower Part of the first Flue should be raised just above the Surface of the Bark-bed, to prevent the Heat from drying the Tan. This Flue should be eighteen Inches deep, and ten Inches in Width; and the upper Flue may be fourteen Inches deep, and of the same Width. But the better to inform the Reader, I have annexed a Plate of this Frame, by which it will be easily comprehended.

Where the Ground is wet, the Bark-pit must not be sunk below Ground; for if the Water should rise to the Tan in Winter, it will cool the Bed, and render it unfit to keep the Plants; therefore in such Situations the whole Pit must be raised above the Surface of the Ground, which will occasion the Back-wall to be five Feet and a half high, and the Front-wall three Feet ten Inches high; so that it will be more troublesome to water the Plants, as also to shift the Tan in these Frames, than in those which are low; which is an Advantage always to be taken, whenever the Situation and Soil will admit of it. For the lower the Beds are, the less they will be exposed to Weather, and the more handy will it be to manage the Plants therein.

The Bottom of the Bark-pit in this Frame should be paved with Bricks, or a Foundation of Rubbish laid at Bottom, which should be made level, and pressed down hard, to prevent the Earth from mixing with the Tan, which it is very apt to do, where this is not observed; besides, if the Persons who take out the old Tan, when the Bed requires to be renewed, are not very careful, they will dig into the Ground, and loosen the Earth in the Foundation.

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so that there will always be an Inequality therein.

The Stoves and Frame here described, are chiefly intended for the Ananas, or may be used for any other tender Exotic Plants of low Growth; but whoever is willing to cultivate the larger Sorts of Exotic Plants and Trees, must build Stoves much higher than either of these, otherwise the Plants cannot be contained therein; for the Musa, which is now pretty common in *England*, will rise in the Space of fourteen or fifteen Months, to the Height of twenty Feet or more, provided they are not cramp'd in their Roots; so that in order to see these Plants in Perfection, the Stoves should be at least twenty-five Feet high, and proportionable in Width.

The most magnificent Stoves which have yet been built in *Europe*, are those of the Right Honourable Lord Petre, at *Thorndon-hall* in *Essex*, some of which are upward of thirty Feet high, and above twenty Feet broad. The Bark-beds in these Stoves are twelve Feet broad; so that there is Room for large Plants to grow in the Borders, which are made in the middle of these Beds, and a spacious Walk round the Bed. On the Back-side of the Stove next to the Flues, is a broad Border, in which the several Sorts of climbing Plants, which are Natives of the warmest Countries, are planted, and an Espalier built to the Top of the House, for these to climb against; so that the Wall is intirely covered with Plants on the Inside of the House, which make a fine Appearance, because as these are not confined in their Roots, they grow as luxuriantly as in their native Soil, and produce their Flowers and Fruit in great Plenty.

In the Building of these large

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Stoves, the same Method should be followed, as for the Stove in the second Plate, with no other Alteration but that of enlarging the Dimensions; which should be in this Proportion, *viz.* for a Stove of twenty-five Feet high, the upright Front-glasses should be twenty Feet high, which will allow a good Share of Room for tall Plants near the Front of the Stove; and from the upper Part of these Glasses, the two Ranges of Sloping-glasses are to run to the Top, which will allow a sufficient Declivity to throw off the Water that may fall on them.

But as these Stoves are so much longer and broader, than those before described, there should be two Ovens or Fire-places to each; for these Stoves being designed to contain the tenderest Plants, the Air must be kept above the temperate Heat, as marked on the Botanical Thermometers. The Length of these Stoves should be fifty Feet, and the Width about eighteen. The two Ovens (or Fire-places) may be built at each End, and so the Flues carried to meet in the Middle: but they should have no Communication with each other; for that will prevent their Drawing, so that the Smoak will not pass thro' them freely. The Flues may be carried over each other six times, and if the lower Flue is made two Feet and a half deep in the Clear, and the other Flues are each twenty Inches deep, it will raise the whole Range about twelve Feet high, including the Covering of each, which will be sufficient to heat the Air contained in the House; for when the Smoak has passed thro' six of these Flues, there will be no Heat left in it; wherefore it is not of any Service to carry a greater Number of them than can be useful. These Flues should discharge their Smoak

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Smoke at each End; for if the Vents are joined together, it often prevents their Drawing well.

SURIANA.

The Characters are;

It hath a rose-shaped Flower, consisting of several Petals, which are placed in a circular Order; from whose Empalement arises the Pointal, which afterwards becomes the Fruit, which generally consists of four Capsules, in which are included four roundish Seeds.

We know but one Species of this Plant; viz.

SURIANA foliis portulacæ angustis. Plum. Nov. Gen. Suriana with narrow Purslain-leaves.

This Plant was so named by Father Plumier, who discovered it in the French Settlements in America, in Honour to Dr. Joseph Surian of Marseilles, who was a very curious Botanist.

The Seeds of this Plant were brought from the *Havanna*, by the late Dr. William Housloun, who found the Plants growing there in great Plenty on the Shore, in moist Places, where the Salt-water usually flows. It also grows plentifully in some Parts of the Island of *Jamaica*.

It is propagated by Seeds, which must be sown on a Hot-bed early in the Spring; and when the Plants are come up, they must be carefully cleaned from Weeds, and frequently refreshed with Water. In warm Weather the Glasses of the Hot-bed should be raised every Day, to admit fresh Air to the Plants, to prevent their Drawing up too weak. When the Plants are fit to transplant, they should be taken up carefully, and each planted in a separate small Pot, filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark, observing to shade them until

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they have taken new Root; after which time they must be duly watered every Evening in hot Weather, and have fresh Air admitted to them every Day in proportion to the Warmth of the Season. In this Hot-bed the Plants may remain till the Autumn, when the Nights begin to be cold; at which time they should be removed into the Stove, and plunged into the Bark-bed. During the Winter Season these Plants must be kept warm, especially while they are young, otherwise they will not live thro' the Winter in this Country; they must also be frequently refreshed with Water, but it must not be given to them in large Quantities in cold Weather; for too much Moisture in Winter will soon destroy them. These Plants make but slow Progress the first Year, tho' afterwards they will grow pretty freely, if they are not stunted in Winter. They must constantly be kept in the Stove in this Country; and if they are plunged into the Bark-bed, they will make the greater Progress. In Summer they must have a large Share of Air, by opening the Glasses of the Stoves, and if their Leaves are covered with Filth (which the Plants in Stoves do often contract) they should be carefully washed with a Sponge; otherwise the Plants will not only appear unsightly, but their Growth will be retarded.

These Plants usually grow about seven or eight Feet high, and as they retain their Leaves throughout the Year, afford an agreeable Variety amongst other Plants in the Stove.

SYMPHYTUM, Comfrey.

To this Article must be added;

1. *SYMPHYTUM minus, tuberosa radice. C. B. P.* Smaller Comfrey, with a tuberose Root,

2. *SYMPHYTUM echii folio ampliore, radice rubra, flore luteo.* *Int. R.*

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R. H. Comfrey with a broad Vipers-bugloss-leaf, a red Root, and a yellow Flower,

3. *SYMPHYTUM echii folio angustiore, radice rubra, flore exalbido.* *Inst.* R. H. Comfrey with a broad Vipers-bugloss-leaf, a red Root, and a whitish Flower,

4. *SYMPHYTUM echii folio angustiore, radice rubra, flore luteo.* *Inst.* R. H. Comfrey with a narrow Vipers-bugloss-leaf, a red Root, and a yellow Flower.

5. *SYMPHYTUM Creticum, echii folio angustiore, longissimis villis horrido, flore croceo.* *Tourn. Cor.* Candy Comfrey, with a narrow Vipers-bugloss-leaf, covered with very long Hairs, and a saffron-coloured Flower.

6. *SYMPHYTUM orientale, echii folio ampliore, longissimis villis horrido, flore croceo.* *Tourn. Cor.* Eastern Comfrey, with a broad Vipers-bugloss-leaf, covered with long Hairs, and a saffron-coloured Flower.

7. *SYMPHYTUM orientale, echii folio, flore albo tenuissimo.* *Tourn. Cor.* Eastern Comfrey, with a Vipers-bugloss-leaf, and a very narrow white Flower.

8. *SYMPHYTUM orientale, echii folio minore, flore nunc albo, nunc flavescente.* *Tourn. Cor.* Eastern Comfrey, with a smaller Vipers-bugloss-leaf, and a Flower sometimes white, and at other times of a yellow Colour.

9. *SYMPHYTUM orientale, oleæ folio argenteo, flore flavescente.* *Tourn. Cor.* Eastern Comfrey, with a silvery Olive-leaf, and a yellow Flower.

10. *SYMPHYTUM orientale angustifolium, flore cæruleo.* *Tourn. Cor.* Eastern Comfrey, with a narrow Leaf, and a blue Flower.

11. *SYMPHYTUM Constantinopoli-*

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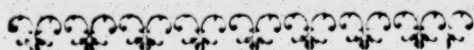
tanum, borraginis folio & facie, flore albo. *Tourn. Cor.* *Constantinople* Comfrey, with the Leaf and Face of Borage, and a white Flower.

12. *SYMPHYTUM orientale, folio subrotundo aspero, flore cæruleo.* *Tourn. Cor.* Eastern Comfrey, with a rough roundish Leaf, and a blue Flower.

13. *SYMPHYTUM orientale, folio subrotundo aspero, flore cæruleo odoratissimo.* *Tourn. Cor.* Eastern Comfrey, with a rough roundish Leaf, and a very sweet blue Flower.

The first Sort here mentioned is pretty common in several *English* Gardens, where it is preserved for the sake of Variety: this increases pretty fast by its Roots; wherefore it is seldom propagated by Seeds. The second, third and fourth Sorts, grow wild in *Spain* and *Portugal*, from whence their Seeds may be obtained: these have red Roots, somewhat resembling those of the Alkanet, and are by some Botanists ranged amongst the Alkanets.

The other Sorts were discovered by Dr. *Tournefort*, in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*. These being all of them pretty hardy Plants, may be propagated by sowing their Seeds on a Bed of fresh undunged Earth, in the Spring of the Year; and when the Plants are come up, they should be carefully cleared from Weeds; and where they are too close, they must be thinned, so as to allow them four or five Inches Distance from each other; and the following *Michaelmas*, they may be transplanted where they are designed to continue; which should be in fresh undunged Earth, at about two Feet Distance from each other, where they may remain to flower and seed.



TABERNÆMONTANA.

The Characters are ;

It hath a tubulous Flower, consisting of one Leaf, which is spread open toward the Top, and divided into several Parts ; from the Bottom of the Flower arises the Pointal, which afterwards becomes the Fruit, composed of two Capsules which open lengthways, and are filled with oblong Seeds, surrounded with a thin Pulp.

The Species are ;

1. TABERNÆMONTANA *laetescens, citrii foliis undulatis.* Plum. Nov. Gen. Milky Tabernæmontana, with a waved Citron-leaf.

2. TABERNÆMONTANA *laetescens, lauri folio, flore albo, siliquis rotundioribus.* Houst. Milky Tabernæmontana, with a Bay-leaf, a white Flower, and rounder Pods.

The first of these Sorts is common in the Island of *Jamaica*, and in several other Places in the warm Parts of *America* ; where it rises to the Height of fifteen or sixteen Feet, having a smooth strait Trunk, covered with a whitish Bark ; at the Top of the Trunk come out the Branches, which are irregular, and beset with shining green Leaves ; from the Foot-stalks of these Leaves, are produced the Flowers, which are yellow, and extremely sweet-scented : these Flowers are succeeded by two forked Pods, in which the Seeds are contained. This Genus of Plants is very near of kin to the *Nerium* or *Oleander*, and has been by some Botanical Writers ranged under that Head ; but the Seeds of this Genus

having no Down adhering to them, as have those of the *Oleander*, and being included in a soft pulpy Substance, Father *Plumier* has constituted this Genus, in Honour to Dr. *James Theodore*, who was called *Tabernæmontanus*, from a little Village in *Germany*, where he was born. He was one of the most knowing Botanists of his Age, and published at *Francfort*, a Folio, in a long Form, in the Year 1590, in which are the Figures of Two thousand Two hundred and Fifty Plants.

The second Sort was discovered at *La Vera Cruz*, by the late Dr. *William Houstoun*, who sent the Seeds into *England*, from whence several of the Plants have been raised.

Both these Plants, being very impatient of Cold, will not live in this Country, unless they are placed in a warm Stove : they may be propagated by Seeds, which should be sown early in the Spring, on a Hot-bed ; and when the Plants are come up, they must be carefully transplanted into small Pots, filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark, being careful to shade them in the Heat of the Day, until they have taken new Root ; after which time, they must have free Air admitted to them every Day when the Weather is warm ; but if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats every Evening, soon after the Sun goes off from the Bed. These Plants must be often refreshed with Water, but it must not be given to them in large Quantities, especially while they are young ; for as they are full of a milky Juice, they are very subject to rot with much Moisture.

The Plants may remain during the Summer Season in the Hot-bed, provided the Tan is stirred up to re-
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few the Heat when it wants, and a little new Tan added; but at *Michaelmas*, when the Nights begin to be cold, the Plants should be removed and plunged into the Bark-bed in the Stove, where, during the Winter Season, they must be kept in a moderate Degree of Warmth; and in cold Weather they should have but a little Water given to them, lest it should rot them. As these Plants are too tender to live in the open Air in this Country, they should constantly remain in the Stove; where, in warm Weather, they may have free Air admitted to them, by opening the Glasses of the Stove, but in cold Weather they must be kept warm: with this Management the Plants will thrive, and produce their Flowers; and being always green, will make a pleasant Diversity amongst other tender Exotic Plants in the Stove.

These Sorts may also be propagated by Cuttings, during the Summer Season; which should be cut off from the old Plants, and laid to dry in the Stove five or six Days before they are planted, that the wounded Parts may heal, otherwise they will rot. These Cuttings should be planted in Pots filled with fresh light Earth, and plunged into the Hot-bed of Tanners Bark, observing to shade them from the Sun in the middle of the Day in hot Weather, as also to refresh them now-and-then with a little Water. When the Cuttings have taken Root, they may be transplanted into separate Pots, and treated in the same manner as those which are raised from Seeds.

TAMNUS, The Black-briony.

To this Article must be added;

1. TAMNUS *Cretica*, *trifido folio*. *Town. Cor.* Black-briony of Crete, with a trifid Leaf.

2. TAMNUS *Americana tubifera*,

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radice fungiformi. Plum. *American* Black-briony, with a Root resembling a Mushroom,

3. TAMNUS *Americana racemosa minor*. Plum. Smaller branching *American* Black-briony.

4. TAMNUS *Americana racemosa major*. Plum. Greater branching *American* Black-briony.

5. TAMNUS *Americana, amplius foliis, subtus purpureis*. Plum. *American* Black-briony, with large Leaves, which are purple on their Under-side.

6. TAMNUS *Americana, anguriae folio*. Plum. *American* Black-briony, with a Water-melon-leaf.

The first of these Sorts was discovered by Dr. *Tournefort*, in the *Levant*, from whence he sent the Seeds to the Royal Garden at *Paris*. This being a very hardy Plant, will thrive in the open Air in this Country. It may be propagated by Seeds, which should be sown in the Autumn (soon after they are ripe) on a Bed of fresh Earth; and when the Plants are come up, they must be kept clear from Weeds, and thinned where they are too close together; which is all the Management they will require, till the Autumn following, when the Roots should be taken up as soon as the Leaves decay, and transplanted where they are designed to remain, which should be near a Hedge, on which they may climb; otherwise the Branches will trail on the Ground, and in wet Seasons will rot.

The other five Sorts were discovered by Father *Plumier* in *America*: these are very common in *Jamaica*, and several other Places in the *West-Indies*, where the Wood have not been cleared; but these being too tender to live in the open Air in *England*, must be preserved in Stoves, and kept in a moderate Temperature of Warmth in the Winter Season.

Season. They are propagated by Seeds, which should be sown on a moderate Hot-bed early in the Spring; and when the Plants are come up, they should be each planted into a separate small Pot, filled with fresh light Earth, and plunged into a Hot-bed of Tanners Bark; where they should remain during the Summer Season, observing to water them plentifully in hot Weather, as also to admit a large Share of Air to them, by raising the Glasses of the Hot-bed with Stones every Day. In the Autumn the Branches of these Plants will decay to the Root, at which time the Pots should be removed, and placed in the Stove, where during the Winter Season, the Roots will remain in an unactive State; wherefore they should not have too much Moisture, lest it rot them: in the Spring they will shoot out again, when the Pots should be placed near some Support, to which their Shoots may fasten, otherwise they will twine round whatever Plants grow near them; for in the Countries of their natural Growth, they climb up the tallest Trees to a very great Height. These are Male and Female in different Plants, as is the common Sort.

TANACETUM, Tansey.

To this Article must be added;

1. *TANACETUM orientale minus.*
Tourn. Cor. Smaller Eastern Tansey.

2. *TANACETUM Davuricum humiliss, foliis tenuiter dissectis.* *Amman.*
Tansey of *Davuria*, with fine-cut Leaves.

3. *TANACETUM Africanum fruticosum multiflorum, foliis tanaceti vulgaris decuplo minoribus.* *Boerb. Ind.* Shrubby African Tansey, with many Flowers, and Leaves like the common Sort, but ten times less.

The first Sort was discovered by Dr. *Tournefort* in the *Levant*, from

whence he sent the Seeds to the Royal Garden at *Paris*. The second Sort was sent to me from *Petersburg*, by Dr. *Amman*, who is Professor of Botany in that University. These being both very hardy Plants, may be propagated by Seeds, or parting of their Roots, in the same manner as is practised for the common Sort; but the Roots of these Kinds do not creep so much as those of the common Sort.

The third Sort was brought from the Cape of *Good Hope*, to some curious Gardens in *Holland*, where it has been propagated, and dispersed to several Parts of *Europe*. This Kind will rise to the Height of three or four Feet, and become shrubby, producing a great Number of Flowers at the Extremity of every Branch, early in the Spring, but seldom perfects its Seeds in this Country. It may be propagated with great Ease; for every Cutting which is planted in Summer, will take Root, provided they are shaded from the Sun, and duly watered in dry Weather. When these Cuttings are rooted, they should be transplanted into Pots filled with fresh Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be placed amongst other hardy Exotic Plants, in a sheltered Situation, where they may remain until *October*, when they must be removed into the Green-house, and placed where they may enjoy as large a Share of free Air as possible in mild Weather; otherwise the Shoots will draw weak, and be unsightly. In *February* these Plants will begin to flower, and will continue flowering several Months; by which means they afford an agreeable Variety amongst other Plants in the Green-house; and being hardy, in respect to Cold, and easy to propa-

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gate, are worthy of a Place in every good Collection of Plants.

TAN, or Tanners Bark.

In the Account of this which is in the former Volumes of the *Gardeners Dictionary*, I have mentioned only two or three Sorts ; but upon being more acquainted with it, I find there are several Degrees of Fineness, to which the Tanners grind their Bark ; and in some Countries they only chop their Bark into large Pieces before they use it, so that the latter Sort is not proper for Hot-beds ; for the Pieces being very large, lie so hollow, as to admit the Air amongst it ; and unless there is a good Quantity of small Bark mixed with it, it seldom ferments well ; therefore where the ground Bark can be procured, it should always be preferred to that which is chopped. But where no other Sorts can be procured, there should be a Quantity of Bran, Saw-dust, or Chaff, mixed with the Tan, which when well mixed, will cause it to ferment ; and whenever the Heat abates, if the Tan is stirred up from the Bottom of the Bed, and some fresh Bran or Sawdust added, it will renew the Heat of the Bark : for as the Pieces are large, it will be much longer before it is consumed than the small Bark, because so long as any Substance remains in it, there will be a Heat continued, which may be increased by fresh Stirring of it, and adding a little new Bark, Bran, or Sawdust.

The best Sort of Tan for Hot-beds is, that which is ground of a middling Size, neither too small nor too large ; this will ferment moderately, and continue its Heat a long time. Before the Tan is put into the Pit where the Hot-bed is designed, it will be proper to lay it in a round Heap, until it begins to ferment,

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especially if it is in the Spring or Autumn ; but in the Summer Season, there is no need of this Precaution, because at that Season, the Sun, thro' the Glasses of the Hot-bed, will soon cause it to ferment ; and where there is some warm Tan left in the Pit, to mix it with the new, that will also cause it to heat soon, provided the new Tan is not too wet.

The Thickness which I directed the Bark to be laid in the Hot-bed, was three Feet, and the Width at least four Feet ; but it will be much better to have the Bed six or seven Feet wide, or more, where there is proper Conveniency for it ; because when the Bed is narrow, the two outside Rows of Pots will receive little Benefit from the Heat ; and where the Width is so great, two Feet and a half in Thickness will be sufficient. For the same Reason also the Length of the Bed should be in proportion ; therefore I should always prefer a Bed of twenty Feet long, to those which are shorter. There are some Persons who make their Tan-beds much wider than what is here mentioned ; but I think they should not be more than eight Feet wide, because it will be very difficult to come at those Plants which are plunged in the middle of the Bed, without injuring those near the Sides : but this is only for Bark-pits in Stoves ; for where the Hot-bed is made in Frames, it should not exceed six Feet and a half, which is full as wide as can be well reached, to water and weed the Pots which are plunged therein.

There are some Persons, who, imagining their Beds should always be very warm, are frequently stirring them, and adding new Tan to them ; and very often lay warm Horse-dung under the Tan, or round the Sides of it,

it, to increase the Heat ; which is not necessary, because, unless it be to raise very difficult Exotic Seeds, or to forward the Rooting of Plants in Spring or Autumn, there doth not require an extraordinary Heat to the Roots of Plants, which many times is very prejudicial to them ; for, from some Experiments which were made by a Friend of mine at *Jamaica*, by placing Thermometers in the Earth at different Depths, he found the Heat nearly equal thro' the Year, (excepting just at the rainy Season) at three Feet below the Surface ; and this Heat was not greater than that of Tan, when in a very slow Fermentation : so that when the Tan is too hot, it is not so proper for the Growth of Plants, as when the Warmth is moderate ; which is a Proof of the Absurdity which some People are guilty of, in supposing they can produce as good Fruit of the Ananas with Bark alone, as those who have Stoves to warm the Air of the Stove, in which the Plants are placed ; for altho' there is no Necessity of a very great Heat to their Roots, yet the circumambient Air should be sufficiently warmed in Winter, otherwise the Plants will make no Progress ; so that instead of shewing their Fruit in *January* and *February*, which is their proper Season, they do often fruit in *May* and *June*, and sometimes later, and consequently do not ripen till the following Winter, when the Sun having little Power of heating the Air, the Fruit are good for little. It is very common to see the Plants, which are placed in Stoves, dropping their Leaves in Winter, and pushing out new ones soon after, which seldom remain long on the Plants before they fall : this is frequently occasioned by the Bed being very warm in which they are placed, when at the same time the Air of

the Stove is never sufficiently warmed, which is certainly a great Error, for by the Experiments which my Friend made with several Thermometers in *Jamaica*, he found that even in the coolest Seasons, the Spirit seldom fell so low as forty Degrees above the freezing Point, in the Night ; and in the Day-time at the same Seasons, the Spirit usually rose to sixty Degrees above the freezing Point. But in the hotter Seasons, the Spirit rose so high, as to break the Glasses of the common Thermometers, when placed intirely in the Shade.

The Hot-beds in the Stoves, which are made of good Tan, will rarely want renewing oftener than twice a Year, that is, in the Beginning of *March*, and toward the End of *September* ; but at neither of these times should the Bark be intirely taken out of the Pits ; for if that which is most consumed is thrown out, (which is generally the upper Part) and the rest mixed with the new Tan, it will ferment again slowly, and prevent the Bed from being too hot, which is frequently the Case when the Bed is intirely made of new Tan. But this is only to be understood of such Hot-Beds, which are designed to maintain tender Exotic Plants ; for where they are made for raising of Cucumbers and Melons, the Beds should be intirely made of new Tan (excepting just about the Holes where the Plants are placed, which should have some old Tan, for the Plants to root in, after their Roots have extended thro' the Earth laid in the Holes) ; which should be laid in a Heap to ferment, at least a Fortnight or three Weeks, before the Bed is made ; and then it will be proper to wait a Week, that the Bed may be in a proper Temper-

ture of Heat, before the Plants are placed into it. Those Persons who have Tan in plenty, and are willing to use it for Hot-beds, to raise Cucumbers and Melons, should have their Plants in Baskets, so that they may at any time remove them into the Hot-bed, without injuring them: and if after they are placed in the Hot-bed, the Heat should be too violent, they may be raised up for a few Days until the Heat is abated, which will prevent the Heat from scorching the Roots of the Plants. The Hot-beds which are made of Tan, if they are properly managed, are much preferable to those made of Horse-dung, for these Purposes; for as the Heat will not be so violent as is that of Horse-dung, the Plants will not be so much in Danger of being scorched; and the Heat continuing longer in these Hot-beds, the Fruit will be brought forward much sooner; and the Plants will extend their Roots quite thro' the Tan, which will occasion their growing stronger; so that the Fruit will be large and well nourished.

When the Tan which is consumed in the Hot-beds is thrown out, it is a very proper Manure for stiff cold Land; but if it is laid on hot dry Ground, it should be spread very thin; otherwise instead of mending the Land it will increase its Heat, and render it too light. There are some Persons who prepare their Flower-beds with rotten Tan, which from many Experiments I have found, has proved very pernicious to them, especially to *Ranunculus's* and *Anemonies*; for in Beds thus prepared, I have lost more than half the Roots, and those which have lived, produced very weak Flowers; and upon taking up their Roots the following Summer, I have found them smaller than when they were

planted; whereas in some adjoining Beds, which were prepared with rotten Neats-dung, the Roots have very few of them died, and have flowered very strong, and made a large Increase; tho' they were planted at the same Season, in the same Situation, and had equal Management. I have also found, that rotten Tan is very prejudicial to Orange-trees: therefore it should never be mixed with the Earth which is designed for them, nor for any other Plants which require a cool loamy Soil; for nothing is more prejudicial to them than this Manure.

But altho' this rotten Tan is improper for Flowers, Orange-trees, and many other Plants in Gardens, yet it is an excellent Manure for strong cold Corn-land; and I have often been surprised to see in some Countries great Heaps of Tan lie neglected in Tanners Yards, when the neighbouring Farmers have fetched much worse Manure ten or fifteen Miles for their Land; whereas, if they were once to try this, they would prefer it to most other Manures yet known.

TAPIA, The Garlick Pear-tree.

The Characters are;

It hath an anomalous Flower, consisting of four Petals or Leaves, which stand erect, the lower Part being occupied by a Number of Chives; the Pointal, which is fixed on a long Foot-stalk, rises from the Centre of the Empalement, and afterwards becomes a globular fleshy Fruit, in the Centre of which are included many Seeds, which are shaped almost like Kidneys.

We have but one Species of this Plant; viz.

TAPIA arborea triphylla. Plum. Nov. Gen. The Garlick Pear-tree, vulgò.

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The Name *Tapia* is what the *Americans* call this Tree; wherefore Father *Plumier* has constituted it as a new Genus by the same Name. The *English* Inhabitants of *America* call it *Garlick-pear*, from the Fruit having a very strong Scent of Garlick.

This Tree is pretty common in *Jamaica*; and several other Places in the warmer Parts of *America*, where it usually rises to the Height of thirty or forty Feet, and spreads into many Branches. During the dry Seasons, these Trees are usually destitute of Leaves; but when the Rains begin, they thrust out their Flowers at the Extremity of their Branches; and soon after the Leaves come out, which are of a dark-green Colour, and are always three together on the same Foot-stalk. When the Flowers fall off, the Pointal becomes a round Fruit, about the Size of a Tennis-ball; which when ripe, has a rough brownish Rind, and a mealy sweetish Pulp, somewhat like some of the *European* Pears, but has a strong Scent of Garlick. This Fruit is often eaten by the Inhabitants of *America*, by way of Dessert, tho' they are not very tempting. The Swine, which are sometimes fattened with this Fruit, have the strong Scent of Garlick communicated to their Flesh. These Trees generally grow on low moist Land in several Parts of *America*.

In *Europe* this Tree is preserved by some curious Persons, who cultivate tender Exotic Plants. It is propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate small Pot, filled with rich Earth, and then plunged into a moderate Hot-bed of

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Tanners Park; observing to shade them from the Sun every Day, until they have taken new Root; after which time, they must be treated in the same manner as hath been directed for the *Guanabanus*; with which Management, this Plant will thrive, and make a Variety in the Stove, amongst other tender Exotic Plants.

TELEPHIOIDES, Bastard Orpine.

The Characters are;

It hath a rose-shaped Flower, consisting of several Petals, which are constantly placed in a circular Order; from whose Empalement arises the Pointal, which afterward becomes a roundish Fruit, divided into six Cells, each containing a single Seed of the same Form with the Cell.

The Species are;

1. TELEPHIOIDES *Græcum humifusum, flore albo. Tourn. Cor.* Low trailing Greek Bastard Orpine, with a white Flower.

2. TELEPHIOIDES *Americanum erectum, folio ovali subtus glauco, flore herbaceo.* Upright American Bastard Orpine, with an oval Leaf, which is of a Sea-green underneath, and an herbaceous Flower.

3. TELEPHIOIDES *Americanum arborescens, fructu parvo, foliis acuminatis. Houst.* Tree-like American Bastard Orpine, with a small Fruit, and pointed Leives.

4. TELEPHIOIDES *Americanum arborescens, foliis latis subrotundis, & subtus incanis, fructu maximo. Houst.* Tree-like American Bastard Orpine, with broad roundish Leaves, which are hoary underneath, and the largest Fruit.

5. TELEPHIOIDES *Americanum arborescens, foliis latioribus subrotundis, fructu majore, ex longo pediculo pendulo. Houst.* American tree-like

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like Bastard Orpine, with broader roundish Leaves, and a larger Fruit hanging on long Foot-stalks.

The first Sort was discovered by Dr. *Tournefort* in *Greece*; who constituted this Genus, giving it this Name from the Similitude there is between this Plant and the true Orpine of *Imperatus*. This is a low trailing Plant, which seldom continues more than two Years; it is propagated by Seeds, which should be sown in the Spring, on a Bed of fresh Earth, where they are designed to remain; and when the Plants are come up, they should be thinned where they are too close, leaving them about six Inches asunder; after this, they must constantly be kept clear from Weeds; in *July* the Plants will begin to flower, which are always produced behind the Leaves; and toward the latter End of *August* the Seeds will begin to ripen, and if they are not gathered as soon as ripe, the Pods will open, and scatter them on the Ground; so that if they are not looked after two or three times a Week, most of the Seeds will be dropped; but the Plants will come up from these self-sown Seeds, and if they are kept clear from Weeds, they will require no other Culture.

The second Sort grows plentifully in *Barbadoes*, *Jamaica*, and several other Places in the *West-Indies*, where the Seeds scatter themselves in such Plenty, that in the Earth which is brought from thence, the Plants frequently come up, especially if it be put on a Hot-bed, by which Method this Plant was first brought into *Europe*. This Sort grows erect, about two Feet high, and the Stem appears woody; but it seldom continues thro' the Winter, especially if it has produced Seeds; so that I believe it to be annual; for the Plants

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which arise in the Spring, flower about *Midsummer*, and the Seeds soon after ripen; insomuch that if they are not frequently looked after, they are soon scattered; but the Seeds which fall into the Pots which are near the Plants, will come up the following Spring; so that when once the Plant is obtained, and permitted to shed its Seeds, there will be little Danger of losing it, provided it is allowed a Place in the Hot-bed, or the Stove; for it is too tender to thrive in the open Air in this Country.

The third Sort was discovered by the late Dr. *Houfoun*, at *La Vera Cruz*, from whence he sent the Seeds to *England*. This Sort rises to the Height of eight or ten Feet, having a woody Stem; the Leaves are branched into many Wings, and the Flowers, which are small, and of a whitish-green Colour, grow on the Under-side of the Leaves, and are succeeded by small Fruit, which hath not as yet ripened in *England*. The Leaves of this Plant fall off in Winter, and new ones come out the following Spring; so that for near four Months, the Plants are intirely destitute of Leaves.

The fourth and fifth Sorts were discovered by the late Dr. *Houfoun* at *Campechy*, where they grow to the Height of twelve or fourteen Feet. The Leaves of these Kinds are broad, and come out alternately on the Branches. The Fruit of the fifth Sort is about the same Size with a small Nut, and is produced on the Under-side of the Leaves, hanging on very long Foot-stalks. The Fruit of the fourth Sort is as large as Walnuts, and hath hard woody Coverings or Shells. There are but few of these Seeds which come to Maturity in the Countries of their Growth: for I have examined many

of the Fruit of both Kinds, and have not found one in forty of them, which had perfect Seeds in them; so that whoever collects their Seeds abroad, should throw them into Water, and take such of them only, as sink to the Bottom; for those which swim on the Surface of the Water, seldom have any Kernels in them.

These three Sorts are propagated by Seeds, (which must be procured from the Countries of their natural Growth; for they do not produce any Seeds in *England*) which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into separate small Pots, filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark; being careful to shade them from the Sun every Day, until they have taken new Root; after which time they should have fresh Air admitted to them every Day, by raising the Glasses of the Hot-bed in proportion to the Warmth of the Season; and they must be frequently watered in hot Weather. In this Bed the Plants may remain till *Michaelmas*, when the Nights begin to be cold, at which time they should be removed into the Stove, and plunged into the Bark-bed; where, during the Winter Season, they must be kept very warm, otherwise they will not live in this Country. When the third Sort drops its Leaves, it should be watered sparingly; for if it hath too much Moisture during the time it is destitute of Leaves, it very often perishes. The fourth and fifth Kinds keep their Leaves throughout the Year; and therefore will require to be frequently refreshed with Water, especially if the Air of the Stove is

kept warm. As these Plants are too tender to thrive in the open Air in this Country, even in the warmest Season of the Year, they should be constantly kept in the Stove; and if they are continued in the Bark-bed, it will greatly promote their Growth. But in Summer, when the Weather is warm, they should have a large Share of fresh Air admitted to them, by opening the Glasses of the Stove; and if their Leaves should contract any Filth, they must be washed, otherwise it will retard the Growth of the Plants. When the Plants have filled the small Pots with their Roots, they should be shifted into Pots a little larger, which should be filled with fresh light Earth; observing, whenever the Plants are shifted, to trim their Roots; and if their Leaves should flag after being removed, it will be proper to shade them from the Sun for a few Days, until they have taken new Root. With this Management the Plants will thrive very fast, and in three Years will produce their Flowers, when they will afford an agreeable Variety, being mixed with other tender Exotic Plants.

TELEPHIUM, Orpine, or Live-long.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves placed orbicularly; out of whose many-leaved Empalement rises the Pointal, which afterward becomes a three-cornered Fruit, consisting of one Cell, which is filled with roundish Seeds. To these Notes should be added, That the Leaves are placed alternately on the Branches.

The Species are;

1. TELEPHIUM *Dioscoridis Imper.*
The true Orpine of *Dioscorides*, according to *Imperatus*.

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2. *TELEPHIUM Americanum, portulaca folio.* *Inst. R. H. American* Orpine, with a Purslain-leaf.

3. *TELEPHIUM maritimum, sedi folio, flore rubello.* *Inst. R. H. Maritime* Orpine, with a Houseleek-leaf, and a red Flower.

4. *TELEPHIUM maritimum, sedi folio, flore albo.* *Inst. R. H. Maritime* Orpine, with a Houseleek-leaf, and a white Flower.

The first Sort is a Native of *Italy, Spain,* and the Southern Parts of *France,* from whence the Seeds have been procured by some Persons who are curious in Botany; who preserve it in their Gardens for the sake of Variety. It is a low Plant, whose Branches trail on the Ground; the Leaves are small and roundish, of a glaucous Colour, and of a pretty thick Consistence. The Flowers are small, and of a whitish-green Colour; so that the whole Plant makes but an ordinary Appearance.

This Sort may be propagated by Seeds, which should be sown early in the Spring, on a Bed of fresh light Earth, in an open Situation; and when the Plants are come up, they should be thinned, so as to leave them six or eight Inches asunder, and they must be constantly kept clear from Weeds; for if these are permitted to grow, they will soon overbear the Plants, and destroy them. In *June* they will begin to flower, and their Seeds will ripen in *August*; when they must be carefully watched to gather the Seeds, otherwise they will soon be scattered abroad; and if the Ground is not disturbed, the Plants will come up in Plenty, and require no other Care, than to keep them clear from Weeds.

The second Sort is a Native of *America,* from whence the Seeds have been brought to several curious Gardens in *Europe.* This being a

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tender Plant, the Seeds should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate small Pot, filled with light fresh undunged Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing to shade them from the Sun in the middle of the Day for a little time, if the Weather should prove hot, until they have taken new Root; after which time they should have free Air admitted to them every Day, in proportion to the Warmth of the Season; and in hot Weather they must be frequently refreshed with Water; but as the Leaves and Branches are succulent, they should not have too much Moisture, lest it rot them. In *July* the Plants will begin to flower, and in *September* the Seeds will ripen, and the Plants will perish soon after, for they are annual; so that if the Plants are not brought forward early enough in the Spring, they will not produce good Seeds in this Country.

The third Sort was brought from the *Cape of Good Hope,* where it grows in great Plenty near the Seaside. The fourth Sort is a Variety of the third, only differing in the Colour of its Flower. These Sorts may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they may be transplanted on another moderate Hot-bed, to forward their Growth; and when they are pretty strong, they should be each planted into a separate Pot filled with fresh Earth, and placed on a gentle Hot-bed, to forward their making new Roots; and in *June* they should be inured to bear the open Air by degrees, into which they may be removed and placed in a warm Situation, amongst

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Ficoides's and other succulent Plants, which are Natives of the same Country; where they may remain till *October*, when they should be removed into an airy Glass-case, where they may be treated in the same manner as hath been directed for the Ficoides's; with which Management these Plants will thrive very well. They may also be propagated by Cuttings, which may be taken from the old Plants during any of the Summer Months, and should be laid to dry for a few Days before they are planted, in the same manner as is practised for other succulent Plants; then they may be planted in a Bed of light Earth, where they will soon take Root, and may be planted afterwards in Pots, and treated as the seedling Plants.

TEREBINTHUS, The Turpentine-tree.

To this *Article* must be added;

1. **TEREBINTHUS** *peregrina, fructu majore, pistaciis simile, eduli. C. B. P.* Foreign Turpentine-tree, with a larger eatable Fruit, like the Pistachia-nut.

2. **TEREBINTHUS** *peregrina, fructu minore & caeruleo, eduli. C. B. P.* Foreign Turpentine-tree, with a smaller blue eatable Fruit.

3. **TEREBINTHUS**, *seu pistachia trifolia. Inst. R. H.* The three-leav'd Turpentine or Pistachia-tree.

4. **TEREBINTHUS** *Cappadocica. H. R. Par.* The Turpentine-tree of *Cappadocia*.

5. **TEREBINTHUS** *Americana, pistachiae fructu non eduli. Plum. Americana* Turpentine-tree, with a Fruit like the Pistachia-nut, which is not eatable.

6. **TEREBINTHUS** *major, betulæ cortice, fructu triangulari. Sloan. Cat.* The greater Turpentine-tree, with a Bark like the Birch-tree, and

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a triangular Fruit, commonly called in the *West-Indies* the Birch-tree.

The first, second and third Sorts, grow in the Eastern Countries, where their Fruit is eaten, but they are at present very rare in *Europe*. The fourth Sort was originally brought from *Cappadocia*; the Fruit of this Sort is not eatable. These Trees may be propagated in the same manner as hath been directed for the two Sorts which are enumerated in the former Volumes of the *Gardeners Dictionary*; and should be treated in the same manner as those afterwards; for being equally hardy, they will thrive in the open Air, if they are planted in a warm Situation. I saw young Plants of all these Kinds, in the Garden of the late Dr. *Boerhaave* near *Leyden*, which were growing in the full Ground, and had resisted the Winter's Cold very well.

The fifth and sixth Sorts grow plentifully in the Island of *Jamaica*, and in several other Places in the *West-Indies*; where the fifth Sort is called the Hog-doctor or Boar-tree, and the sixth Sort is called the Birch-tree. These Trees grow to the Height of thirty or forty Feet in the Places of their natural Growth, and have very large Trunks. The fifth Sort produces small purple Flowers, at the Extremity of the Branches, which generally appear before the Leaves come out; for the Trees are destitute of their Leaves a considerable time. From the Trunk and Branches of this Tree, there issues out a Balsam of the Consistence and Smell of Turpentine, which is greatly used by the Inhabitants to heal green Wounds.

The sixth Sort produces small purple Flowers at the Extremity of the Branches, which generally pre-

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cede the Leaves, like the other Sort ; for the Leaves of this Tree fall off in *November*, and in *February* they put out new ones. The Trunk and Branches of this Tree being wounded, there flows out a liquid Balsam, which the Inhabitants call *Hoggum*, and make use of it to vomit or purge in chronical Diseases; the usual Dose is a Quarter of an Ounce for a strong Man, which is given in a Glass of Water, and will certainly operate in a Quarter of an Hour after taking, without making the Person sick, or causing any Uneasiness. The Inhabitants of *Jamaica* confidently affirm, that when the wild Hogs are wounded, they will repair to these Trees, and rub against the Trunks till the Balsam flows out; when they rub their wounded Part on the Balsam, which cures them, and occasioned their calling it the *Hog-doctor-tree*.

These Trees may be propagated either by Seeds, or Cuttings; but the Seeds will not retain their growing Quality long: therefore they should be put into a Box of Earth soon after they are ripe, and when the Plants are come up, and have obtained Strength, they may be brought to *England*; but there should be great Care taken of them in their Passage, that they are not injured by salt Water; nor should they have much fresh Water given to them, especially as they come into a cooler Climate; for too much Moisture will soon destroy them. In like manner also should the Cuttings of these Trees be managed; for they should be planted in Tubs of Earth, and kept in the Country until they are well rooted; because if they are sent over before they have taken good Root, they seldom come good to *England*. When these arrive, they

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should be each transplanted into separate Pots, filled with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark; observing, if the Season is very warm, to shade them from the Sun in the Heat of the Day, and refresh them every other Day with Water; but do not give it to them in great Quantities, lest it rot their tender Roots. When the Plants have taken good Root, and recovered the Injuries they received in their Passage, they may be treated in the same manner as is practised for other tender Exotic Plants, keeping them constantly in the Bark-stove; for they are too tender to live in the open Air in this Country. During the Winter Season, when they are destitute of Leaves, they should have but little Water; but in Summer, when the Weather is warm, they must have frequent Refreshings, and a good Share of Air should be admitted to them at that Season. With this Management the Plants will thrive, and afford an agreeable Variety in the Stove, amongst other Plants of the same Country.

TERNATEA.

The Characters are;

It hath a papilionaceous (or Pea-bloom) Flower, whose Standard almost hides the Keel and the Wings; the Pointal afterward becomes a Pod, which opens two ways, and is filled with kidney-shaped Seeds. To these Notes should be added, That the Leaves are winged, and are terminated by an odd Lobe.

The Species are;

1. *TERNATEA flore simplici cœruleo.* Acad. Reg. Scien. Ternatea with a single blue Flower.

2. *TERNATEA flore pleno cœruleo.* Acad. Reg. Scien. Ternatea with a double blue Flower.

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3. *TERNATEA flore simplici albi-
do. Acad. Reg. Scien.* Ternatea
with a single white Flower.

4. *TERNATEA Americana peren-
nis, flore cæruleo. Houst.* American
perennial Ternatea, with a blue
Flower.

The Name which Dr. *Tournefort*
has given to this Genus of Plants, is,
from the Place whence these Plants
were first brought, which is one of
the *Molucca* Islands, called *Ternate*.

The three first-mentioned Sorts are
annual Plants, which perish soon after
they have perfected their Seeds. But
the fourth Sort will abide several
Years, provided the Plants are placed
in a warm Stove. They are all of
them tender Plants; wherefore their
Seeds should be sown on a Hot-bed
early in the Spring; and when the
Plants are come up, they should be
each transplanted into a separate small
Pot, filled with fresh light Earth,
and then plunged into a moderate
Hot-bed of Tanners Bark; observing
to shade them from the Sun, until
they have taken new Root, and
often refresh them with Water. As
these Plants have very slender
Branches, they twist round whatever
Plants grow near them; therefore
they should have Sticks thrust into
the Pots, for them to twine round,
that they may be supported from
trailing on the Ground. In warm
Weather these Plants should have a
large Share of free Air admitted to
them, otherwise they will draw up
too weak; and when they are grown
so tall, as to reach the Glasses of the
Hot-bed, they should be taken out,
and (after having shifted them into
larger Pots) they should be plunged
into the Bark-bed in the Stove, where
they should remain to flower, and
perfect their Seeds.

The Flowers of the first and
second Sorts are of a very deep-blue

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Colour, and if put in Water and
macerated, will dye the Water al-
most as blue as Indigo. The second
Sort, having very double Flowers,
makes a fine Appearance when it is
in Flower, and is worthy of a Place
in every good Garden, where there
is Conveniency for bringing them to
Perfection. For as they are very
tender, so if they are not brought
forward early in the Spring, and
carefully treated afterward, they will
not perfect their Seeds in this Coun-
try.

The third Sort differs from the
first, only in the Colour of the
Flower; wherefore it may be ad-
mitted for the sake of Variety, tho'
the Flowers are not near so beauti-
ful.

The fourth Sort was discovered by
the late Dr. *William Houstoun* in
Jamaica, from whence he sent the
Seeds to *England*. This is an abiding
Plant, which rarely produces any
Flowers in this Country; for from
several of these Plants, which have
been raised in the Physic-garden,
there has but one of them produced
any Flowers as yet, and that not
more than three Flowers, though it
has remained several Years.

TETRAGONOCARPOS.

The Characters are;

*It hath an apetalous Flower, whose
Empalement is divided into four
Parts; in the middle of the Flower
rises the Pointal, which afterward
becomes a Fruit, having four Wings
or Corners, and four Cells; in each
of which is contained one Seed.*

The Species are;

1. *TETRAGONOCARPOS Africana
fruticans, foliis longis & angustis. H.
Amst.* African shrubby Tetragono-
carpos, with long narrow Leaves.

2. *TETRAGONOCARPOS Africana,
folio portulacæ longo, flore herbaceo.
Everb. Lvd. Alt.* African Tetragono-
carpos,

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carpos, with a long Purslain-leaf, and an herbaceous Flower.

The first of these Plants is pretty common in the *English* Gardens, where there are Collections of rare Plants. This may be propagated by Cuttings, which should be cut off from the Plant a few Days before they are planted, that the Part where they are cut may be healed, otherwise they will rot; for the Leaves and Stalks of this Plant are very full of Moisture. The best Time to plant these Cuttings is in *July*, that they may have Time to make good Roots before Winter. These Cuttings may be planted on a Bed of fresh Earth; and if the Cuttings are shaded from the Sun in the Heat of the Day, it will be of Service to them. They should be frequently refreshed with Water; but they must not have it in too great Plenty, for that will rot them. In about six Weeks after planting, the Cuttings will be sufficiently rooted to transplant; therefore they should be taken up, and planted into Pots, filled with light fresh undunged Earth, and placed in a shady Situation, until they have taken new Root; after which time they may be placed with other hardy Exotic Plants, in a sheltered Situation, where they may remain till the Middle or latter End of *October*; at which time they should be removed into the Greenhouse, and placed where they may enjoy as much free Air as possible in mild Weather; for they only require to be protected from the Frost, being pretty hardy with respect to Cold; but they should not have too much Moisture in Winter. If these Plants are planted in the full Ground in the Summer Season, they will grow prodigiously rank and large, as they also will, if they are permitted to root into the Ground thro'

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the Holes at the Bottom of the Pots: therefore the Pots should be frequently removed to prevent it; for when they grow too freely, their Leaves will be very full of Moisture; which together with the Weight of the Fruit, which are always produced at the Extremity of the Branches, will weigh the Branches upon the Ground, and render the Plants very unsightly. The Plants of this Kind commonly grow very straggling; therefore, the more their Roots are confined in the Pots, the more close and stunted will be the Heads of the Plants, which is what they should always be kept to, in order to render them sightly. The Flowers of this Plant have no great Beauty; but as the whole Appearance of the Plant is peculiar, it may be allowed a Place in every Collection of Plants, for the sake of Variety, since it requires no great Trouble to cultivate it.

This Plant may also be propagated by Seeds, which should be sown on a warm Border of light fresh Earth, where sometimes they will remain a whole Year before the Plants come up; therefore, when they do not come up the first Season, the Borders should not be disturbed, but kept constantly clear from Weeds; and when the Plants are come up about four Inches high, they should be taken up and planted in Pots (and treated in the same manner as hath been directed for the Cuttings); for if they are suffered to grow in the Border till they are large, they will not transplant so well, nor will they make so handsome Plants.

The second Sort is less common in the *English* Gardens than the former; but in some of the Gardens in *Holland*, it is in great Plenty. This may be treated as the first Sort, and is equally hardy.

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TEUCRIUM, Tree-germander.

To this *Article* must be added ;

1. TEUCRIUM *Hispanicum, latiore folio. Inst. R. H.* Spanish Tree-germander, with a broader Leaf.

2. TEUCRIUM *supinum perenne, foliis laciniatis. Inst. R. H.* Low perennial Germander, with jagged Leaves.

3. TEUCRIUM *supinum annuum Lusitanicum, foliis laciniatis. Inst. R. H.* Low annual Portugal Germander, with jagged Leaves.

4. TEUCRIUM *frutescens, stœchadis Arabicæ folio & facie. Tourn. Cor.* Shrubby Germander, with the Leaf and Face of Arabian Stœchas.

5. TEUCRIUM *orientale latifolium laciniatum, flore parvo. Tourn. Cor.* Broad jagged-leav'd Eastern Germander, with a small Flower.

6. TEUCRIUM *orientale angustifolium laciniatum, flore magno suaverubente. Tourn. Cor.* Narrow jagged-leav'd Eastern Germander, with a large soft red Flower.

7. TEUCRIUM *orientale angustifolium laciniatum, flore magno subcæruleo. Tourn. Cor.* Narrow jagged-leav'd Eastern Germander, with a large blue Flower.

8. TEUCRIUM *Hispanicum supinum humilius, verbenæ tenuifoliæ foliis. Jussieu.* Low trailing Spanish Germander, with Leaves like the narrow-leav'd Vervain.

9. TEUCRIUM *Creticum odoratum, flore purpureo. H. R. Par.* Sweet Germander of Crete, with a purple Flower.

10. TEUCRIUM *Americanum, halicacabos & alopecuroides. Plum. Cat.* American Tree-germander, like the Winter Cherry and Fox-tail.

11. TEUCRIUM *Americanum, chamædryos folio, flore albo. Houst.* American Tree-germander, with a common Germander-leaf, and a white Flower.

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The first Sort here mentioned, is very like to the *Bætic* Tree-germander, which is mentioned in the former Volumes of the *Gardeners Dictionary*: from which it differs in the Leaves being broader, the Shoots stronger, and the young Shoots being whiter. This Sort may be propagated by Cuttings, which may be planted during any of the Summer Months, in a Bed of fresh Earth, observing to shade them from the Sun until they have taken Root, as also to refresh them frequently with Water. When the Cuttings are well rooted, they should be carefully transplanted, some of them into Pots, that they may be sheltered in Winter, and others on a warm dry Border, where they will endure the Cold of our ordinary Winters very well, without any Covering. These Plants, which are designed to live in the open Air, must be planted on a dry rubbishy Soil, in which they will grow more stunted, and resist the Frost much better, than when they grow in a rich Soil, which causes them to be more luxuriant. Those Plants which are planted in Pots, should be sheltered under a Hot-bed Frame in Winter; where they may have a greater Share of Air than in a Green-house; for the Glasses should not be put over them in mild Weather, these Plants only requiring to be protected from severe Frost.

The fourth and ninth Sorts are also shrubby Plants, which may be propagated, and treated in the same manner as hath been directed for the first; with which Management these will thrive very well, and may be allowed to have a Place in the Garden, for the sake of Variety.

The second Sort is a low trailing Plant, which puts out Roots from the Joints of the Stalks, whereby it may

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may easily be propagated, as also from the Seeds, which require no farther Care, than to sow them on a Bed of fresh Earth, in an open Situation; and when the Plants are come up, they must be kept clear from Weeds; and where they are too close, some of them should be drawn out to give room for the others to grow. This Sort will ripen Seeds very well in this Country; and, if planted in a warm Situation, will endure the Cold of our ordinary Winters very well.

The third, fifth, sixth, seventh and eighth Sorts, are annual Plants, of humble Growth. These are propagated by Seeds, which should be sown on a Bed of fresh Earth in *March*; and when the Plants are come up, they must be thinned where they are too close, and kept clear from Weeds, which is all the Culture they require; for as they are Plants which make no great Figure in a Garden, they are not cultivated in great Plenty; a few Plants of each Sort, for the sake of Variety, are as many as any curious Person commonly keeps. These Plants will drop their Seeds, and the Plants will come up from the self-sown Seeds, full as well, if not better than when they are sown by Hand; and may be easily maintained.

The tenth Sort was discovered by Father *Plumier*, in the *French Settlements* in *America*; and the eleventh was discovered by the late Dr. *Houssoun*, at the *Havannah*; from whence he brought the Seeds to *England*. These are both very tender Plants, and must be preserved in a Stove, otherwise they will not live through the Winter in this Country. They may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they should

be each transplanted into a separate small Pot, filled with fresh light Earth, and then plunged into a moderate Hot-bed of Tanners Bark, and shaded from the Sun in the Heat of the Day, until the Plants have taken new Root; after which time they should have a large Share of free Air admitted to them in warm Weather, and must be plentifully watered. When these Plants are brought forward early in the Spring, some of them will produce their Flowers the same Season, but they rarely produce ripe Seeds the first Year; wherefore the Plants should be removed into the Stove at *Michaelmas*, and during the Winter Season should have a moderate Share of Heat, and will require to be frequently refreshed with Water; but it must not be given to them in large Quantities, when the Weather is cold; for that will often occasion their Leaves falling off. These Plants, which are preserved through the Winter, will flower early the following Spring, and produce good Seeds; and the old Plants may be preserved three or four Years, if they are constantly kept in a Stove.

THALICTRUM, Meadow-rue.

To this Article must be added;

1. THALICTRUM *majus, filiqua angulosa aut striata*. C. B. P. Greater Meadow-rue, with an angular furrowed Pod.

2. THALICTRUM *pratense majus, Monspeliensium, foliis rugosis*. H. R. Par. Greater Montpelier Meadow-rue, with rough Leaves.

3. THALICTRUM *majus non striatum*. C. B. P. Greater smooth Meadow-rue.

4. THALICTRUM *majus flavum, staminibus luteis, vel glauco foliis*. C. B. P. Greater yellow Meadow-rue, with yellow Chives, and a sea-green Leaf.

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5. *THALICTRUM magnum, flore lateo odorato. Vir. Lusit.* Great Meadow-rue, with a yellow sweet Flower.

6. *THALICTRUM minus, asphodeli radice, parva flore. Inst. R. H.* Smaller Meadow-rue, with an Asphodel-root, and a small Flower.

7. *THALICTRUM minus, asphodeli radice, magno flore. Inst. R. H.* Smaller Meadow-rue, with an Asphodel-root, and a large Flower.

8. *THALICTRUM minus. C. B. P.* Smaller Meadow-rue.

9. *THALICTRUM pratense angustifolium. C. B. P.* Narrow-leav'd Meadow-rue.

10. *THALICTRUM pratense, angustissimo folio. C. B. P.* The narrowest-leaved Meadow-rue.

11. *THALICTRUM minus alterum, Parisiense, foliis crassioribus & lucidis. H. R. Par.* Another small Meadow-rue of *Paris*, with thicker shining Leaves.

12. *THALICTRUM minimum fetidissimum. C. B. P.* The least and most stinking Meadow-rue.

13. *THALICTRUM montanum minus, foliis latioribus. Raii Syn.* Small Mountain Meadow-rue, with broader Leaves.

14. *THALICTRUM minimum montanum atro-rubens, foliis splendidioribus. Raii Syn.* Smallest Mountain Meadow-rue, with blackish-red shining Leaves.

The first Sort here mentioned grows plentifully in moist Meadows, in divers Parts of *England*. The second Sort is found growing wild about *Newmarket*, and on chalky Grounds in several other Parts of *England*. The thirteenth and fourteenth Sorts grow wild on the rocky Mountains of *Wales*, from whence they have been transplanted into some curious Gardens, where they are preserved for the sake of Variety.

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The other Sorts are not Natives of *England*, yet being equally hardy with the former, they will thrive in the open Air very well. Most of these Plants have creeping Roots, by which they spread very far, and may be easily propagated; but they should not be planted amongst other better Plants, because these will overbear and destroy them. These Plants should be planted in a moist Soil, otherwise they will not flower very strong. The best Time to transplant them, is about *Michaelmas*, that they may be well rooted before the dry Weather comes on in the Spring.

The first, second, third, fourth, fifth, ninth and tenth Sorts, being tall Plants, may be placed amongst other Plants of the same Growth, which delight in a moist Soil, in some obscure Part of the Garden, where better things will not thrive; in which Places these will thrive and flower, and maintain themselves without requiring any other Care, but to keep them clear from very large Weeds, which would overbear and destroy them.

The other Sorts are of humble Growth, some of them seldom rising above six Inches high, and the others not more than a Foot; wherefore these may be planted in shady Borders with other hardy Plants, where they will thrive very well, provided they are watered in dry Weather, and will abide several Years. All these Sorts flower in *May* and *June*, and their Seeds are ripe toward the End of *August*. But as these propagate so fast by their Roots, they are rarely raised from Seeds, which is a more tedious Method; for it is commonly three Years before the seedling Plants produce their Flowers so strong as the old ones.

THAPSIA, Scorching-fenel, or Deadly-carrot.

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The Characters are ;

It hath an umbellated rose-shaped Flower, consisting of five Petals, which are placed in a circular Order, and rest on the Empalement, which afterward becomes a Fruit, composed of two long furrowed Seeds, which have a large leafy Border.

The Species are ;

1. THAPSIA maxima, latissimo folio. C. B. P. The greatest Scorching-fenel, with a very broad Leaf.

2. THAPSIA latifolia villosa. C. B. P. Broad-leav'd hairy Scorching-fenel.

3. THAPSIA foliis libanotidis, foetidissima. C. B. P. The most stinking Scorching-fenel, with Herb-frankincense-leaves.

4. THAPSIA apii folio, Lusitanica foetidissima, flore albo. Inst. R. H. The most stinking Portugal Scorching-fenel with a Smallage-leaf, and a white Flower.

5. THAPSIA tenuiore folio, Apula. Inst. R. H. Apulian Scorching-fenel, with a narrow Leaf.

6. THAPSIA, five Turbith Garganicum, semine latissimo. J. B. Scorching-fenel with very broad Seeds, whose Roots were supposed to be the Turbith.

7. THAPSIA Alpina lucida, thalictri aut carotæ folio, flore albo. Bocc. Mus. Shining Scorching-fenel of the Alps, with a Meadow-rue or Carrot-leaf, and a white Flower.

8. THAPSIA thalictri folio, Lusitanica villosa. Inst. R. H. Hairy Portugal Scorching-fenel, with a Meadow-rue-leaf.

9. THAPSIA orientalis, anethi folio, semine elegantius crenato. Tourn. Cor. Eastern Scorching-fenel, with a Dill-leaf, and Seeds beautifully notched.

10. THAPSIA orientalis aquatica, angelicæ folio. Tourn. Cor. Eastern Water Scorching-fenel, with an Angelica-leaf.

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11. THAPSIA Cretica, thalictri folio, villosa, seminum alis purpure-violaceis. Tourn. Cor. Hairy Scorching-fenel of Crete, with a Meadow-rue-leaf, and Seeds with purple-violet Borders.

12. THAPSIA carotæ folio. C. B. P. Scorching-fenel with a Carrot-leaf.

The first Sort grows plentifully in several Parts of Spain, and on the Pyrenees, where the Inhabitants sometimes use the Roots in Medicine; but it purges upwards and downwards with so much Violence, that it frequently puts those who take it in great Hazard of their Lives.

The sixth Sort, whose Roots have by some Botanists been supposed to be the Turbith of the Shops, grows on the Coast of Africa; from whence the Seeds have been brought into several curious Gardens in Europe, where the Plant is preserved by those who delight in Botany.

The twelfth Sort is mentioned in the Catalogue of Plants inserted in the College Dispensatory, but is rarely used in Medicine; for it is of such an acrid burning Quality, that it is very dangerous to take inwardly; but outwardly applied, it takes off Blemishes and Scabs from the Skin.

All these Plants, being very hardy in respect to Cold, will thrive in the open Air in this Country; but they should have a loamy Soil, and in dry Weather should be watered, otherwise their Flowers will fall off, without producing good Seeds. These Plants are only propagated by Seed, which should be sown in Autumn; for if they are kept out of the Ground till Spring, they often miscarry; or if they do grow, they commonly lie in the Earth a whole Year before the Plants come up; whereas those Seeds which are sown in

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in Autumn, generally grow the following Spring. These should be sown in Drills, in the Place where they are designed to remain; the Drills should be at least two Feet asunder, because the Plants spread their Leaves very wide. When the Plants come up in the Spring, they must be carefully cleared from Weeds; and where they are too close together, some of them should be drawn out, to give room for the others to grow; but at this time they need not be left more than two or three Inches apart. For the first Year the Plants arise from Seeds, they make but slow Progress; wherefore the next Autumn, the remaining Part of the Plants may be taken up, leaving those which are designed to continue, about eighteen Inches asunder; and those which are taken up, may be transplanted into another Bed, if they are wanted. After the first Year these Plants will require no further Care, but to keep them clear from Weeds; and every Spring, just before the Plants begin to push out new Leaves, the Ground should be carefully dug between the Plants to loosen it; but the Roots must not be injured, lest it should cause them to decay. The Plants, being thus managed, will continue several Years, and produce Flowers and Seeds annually, from which new Plants may be raised.

THLASPI, Treacle-mustard.

To this Article must be added;

1. *THLASPI arvense, vaccariæ incano folio.* C. B. P. Common Mithridate-mustard.

2. *THLASPI vaccariæ incano folio, minus.* C. B. P. Small hoary-leav'd Mithridate-mustard.

3. *THLASPI capsulis hirsutis.* J. B. Mithridate-mustard with hairy Pods.

4. *THLASPI capsula cordata, peregrinum.* J. B. Foreign Mithridate-

mustard, with a heart-shaped Pod.

5. *THLASPI allium redolens.* Mor. Hist. Mithridate-mustard, smelling like Garlick.

6. *THLASPI arvense perfoliatum majus.* C. B. P. Greater field Mithridate-mustard, with thorough-wax Leaves.

7. *THLASPI perfoliatum minus.* C. B. P. Smaller thorough-wax-leav'd Mithridate-mustard.

8. *THLASPI parvum saxatile, flore rubente.* C. B. P. Small rock Mithridate-mustard, with a reddish Flower.

9. *THLASPI Alpinum, folio rotundiore carnosio, flore purpurascente.* Inst. R. H. Mithridate-mustard of the Alps, with a rounder fleshy Leaf, and a purplish Flower.

10. *THLASPI minimum Lusitanicum, cochleariæ folio.* Inst. R. H. The least Portugal Mithridate-mustard, with a Scurvy-grass-leaf.

11. *THLASPI Alpinum minimum, foliis crassis & angustis.* Inst. R. H. The least Mithridate-mustard of the Alps, with narrow fleshy Leaves.

12. *THLASPI Lusitanicum umbellatum, gramineo folio, flore purpurascente & albo.* Inst. R. H. Portugal Mithridate-mustard, with a Grass-leaf, and purplish or white Flowers, growing in an Umbel.

13. *THLASPI orientale saxatile, flore rubente, foliis polygalæ, petalis florum æqualibus.* Tourn. Cor. Eastern Rock Mithridate-mustard, with Milkwort-leaves, and reddish Flowers, whose Petals are equal.

14. *THLASPI orientale tenuifolium canescens, flore albo.* Tourn. Cor. Eastern Mithridate-mustard, with narrow Leaves, which are hoary, and a white Flower.

15. *THLASPI orientale glabrum, samoli foliis.* Tourn. Cor. Smooth Eastern Mithridate-mustard, with Samolus-leaves.

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16. *THLASPI orientale, folio cynocrambes, flore minimo. Tourn. Cor.* Eastern Mithridate-mustard, with a Dogs-mercury-leaf, and a very small Flower.

17. *THLASPI Virginianum, foliis iberidis amplioribus & serratis. Inst. R. H. Virginia* Mithridate-mustard, with Leaves like the Sciatica-crefs, which are broader, and sawed on their Edges.

18. *THLASPI montanum semper-virens. C. B. P.* Ever-green mountain Mithridate-mustard.

19. *THLASPI orientale fruticosum, scammonii Monspelienfis folio. Tourn. Cor.* Shrubby Eastern Mithridate-mustard, with the Leaf of *Montpelier* Scammony.

20. *THLASPI foliis globulariæ. J. B.* Treacle-mustard with Leaves like Globularia.

The first Sort grows plentifully wild amongst the Corn, and by the Sides of Hedges, in most Parts of *England*. The Seeds of this Sort are generally sold by the Druggists in *London*, for the true Mithridate-mustard; but the first Sort, which is mentioned in the former Volumes of the *Gardeners Dictionary*, is what the College of Physicians have directed to be used in the *Theriaca*.

The second, third, seventh and twentieth Sorts, do also grow wild in some Parts of *Great Britain*; but are not so common as the former Sort, especially the twentieth; which is found in the mountainous Pastures in *Yorkshire*, and some other Places in the North; but is not to be met with in the South, unless in some curious Botanic Gardens, where it is preserved for the sake of Variety.

The seventeen first-mentioned Sorts are all of them annual Plants, which, if permitted to shed their Seeds on the Ground, will succeed much better than when sown by Hand, espe-

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cially if they are sown in Autumn; for when the Seeds are sown in the Spring, if the Season should prove dry, they seldom grow; and if they do come up, the Plants will be very small, and produce little Seed; whereas those Plants which come up in Autumn, will abide the Winter's Cold very well, and the following Spring will get Strength before the hot Weather comes in; by which means they will flower, and produce plenty of Seeds.

Some of these Sorts bear pretty Flowers growing in Clusters, which renders them worthy of a Place in large Gardens, where there is room for Variety, especially as they require very little Trouble to cultivate them. For none of these Sorts should be transplanted, but sown where they are designed to remain; and if they are kept clear from Weeds, it is all the Culture they require. Many of these Plants will grow on the Top of old Walls, or other Buildings; where they will shed their Seeds, and maintain themselves without Care; and growing very low and stunted, will produce a great Number of Flowers; which will make a pretty Appearance in the Spring, when they are in Flower.

The eighteenth Sort is an abiding Plant, which continues always green, and flowers a long time. The Flowers of this Kind grow in Umbels at the Extremity of the Shoots, which resemble those of the Candy-tuft Tree, but are smaller. The Leaves of this Sort are narrow and pointed; and the whole Plant seldom rises above six Inches high. This Sort seldom produces good Seeds in *England*, but may be propagated by Cuttings, which should be planted in a shady Border, during any of the Summer Months; and in dry Weather

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ther they must be frequently watered. When these are well rooted, they may be transplanted where they are designed to remain, which should be on a dry rubbishy Border; where they will thrive and flower much better than in a rich Soil. This Plant is hardy enough to endure the Cold of our ordinary Winters very well in the open Air; but in very severe Frosts they are sometimes destroyed; for which Reason, it will be proper to have a few Plants in Pots, which may be sheltered in Winter, in order to preserve the Kind.

The nineteenth Sort was discovered by Dr. *Tournefort*, in the *Lewant*; this Plant grows to the Height of two Feet or more, and becomes shrubby. The Flowers of this Kind, being small, do not make a very good Appearance; but the Plant is preserved by some curious Persons, for the sake of Variety. This Sort may be propagated by Cuttings during any of the Summer Months, in like manner as the last-mentioned, but is somewhat tenderer: wherefore these, when they are rooted, should be planted in Pots, and sheltered in Winter, in the same manner as hath been directed for the Candytuft-tree, in the former Volumes of the *Gardeners Dictionary*.

THLASPIDIUM, Bastard Mithridate-mustard.

To this *Article* must be added;

1. **THLASPIDIUM** *Monspeliense, hieracii folio hirsuto*. *Inst. R. H.* *Montpelier* Thlaspidium, with a hairy Hawk-weed-leaf.

2. **THLASPIDIUM** *hirsutum, calyce floris auriculato*. *Inst. R. H.* Hairy Thlaspidium, with an eared Flower-cup.

3. **THLASPIDIUM** *annuum, flore pallide luteo*. *Inst. R. H.* Annual Thlaspidium, with a pale yellow Flower.

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4. **THLASPIDIUM** *raphani folio*. *Inst. R. H.* Radish-leav'd Thlaspidium.

5. **THLASPIDIUM** *anchusae folio*. *Inst. H. R.* Alkanet-leav'd Thlaspidium.

6. **THLASPIDIUM** *Apulum spicatum*. *Inst. R. H.* Spiked Thlaspidium of *Apulia*.

7. **THLASPIDIUM** *montanum angustifolium glabrum*. *Inst. R. H.* Smooth narrow-leav'd mountain Thlaspidium.

8. **THLASPIDIUM** *Alpinum pumilum asperum*. *Inst. R. H.* Low rough Thlaspidium of the *Alps*.

9. **THLASPIDIUM** *Apulum incanum, floribus ex albo purpurascens*. *Inst. R. H.* Hoary Thlaspidium of *Apulia*, with white-purplish Flowers.

10. **THLASPIDIUM** *Hispanicum, ampliore flore, folio crasso dentato*. *Hort. Elth.* Spanish Thlaspidium, with a large Flower, and a thick indented Leaf.

The first Sort here mentioned, is an abiding Plant of humble Growth, seldom rising above six Inches high. This is very common in the South of *France, Italy, Sicily* and *Spain*, where it usually flowers in *May* and *June*; and the Seeds are ripe in *July*. In *England* this Plant is preserved by some curious Persons, for the sake of Variety; though there is no great Beauty in its Flowers. They are hardy enough to endure the Cold of our Winters in the open Air, provided they are sown on a dry rubbishy Soil; for if they are sown on a rich moist Soil, they grow so rank in Summer, that the first Frost in Autumn usually destroys them. These Plants do not bear transplanting very well; but should be sown where they are designed to remain, and thinned where they come up too close, leaving the Plants about six or eight Inches asunder; and then, if they

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they are kept clear from Weeds, it is the only Culture they require. Some of these Plants will flower the same Season they are sown; but unless the Autumn proves dry and warm, they seldom produce good Seeds; therefore the surest Method is to sow the Seeds in Autumn, when the Plants will come up, and abide the Winter, flowering early the following Summer, when the Seeds will come to Perfection.

The second Sort will sometimes live two Years, if it grows on a lean dry Soil; but if this is sown in Autumn, as the former Sort, it will flower, and produce good Seeds.

The third, fourth, fifth, sixth, seventh, eighth and ninth Sorts, are all of them annual Plants; these should be also sown about the middle of *August*, on a dry poor Soil in a warm Situation, where the Plants will abide the Cold of our Winters very well, and will flower early the following Spring, so that good Seeds may be obtained from them. These Seeds, if they are permitted to scatter, will come up and thrive without any farther Care, but to keep them from being over-run with Weeds; therefore may be allowed a Place on dry rubbishy Borders, or on old Walls or Ruins, where they will flower, and make an agreeable Variety.

The tenth Sort produces large fair Flowers, which continue a long time in Beauty; and is therefore worthy a Place in every good Garden. This Sort is at present very rare in the *English* Gardens; but as it may be easily propagated by Cuttings in the same manner as the Candytuft-tree, it may be treated as hath been directed in the former Volumes of the *Gardeners Dictionary* for that Sort; with which Management these Plants will thrive and flower extremely well.

VOL. III.

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THYMBRA.

The Characters are;

It hath a labiated Flower, like those of Savory, Thyme and Calamint, from which this Plant differs, in having its Flowers growing in Whorles.

The Species are;

1. THYMBRA *legitima*. *Clus. Hist.* The true Thymbra of *Clusius*.

2. THYMBRA *Hispanica*, *coridis folio*. *Inst. R. H.* Spanish Thymbra, with a fair Heath-pine-leaf.

3. THYMBRA *Sancti Juliani*, *five Satureia vera*. *Lob. Icon.* Thymbra of Mount Saint Julian, or the true Savory of *Lobel*.

The first Sort rises about two Feet high, and hath a wooden Stem, and divides into many Branches, so as to form a small Bush; the Leaves of this Plant are somewhat like those of Savory, and have a strong aromatic Scent when bruised. This Sort grows plentifully in several Islands of the *Archipelago*, from whence the Seeds were sent to several curious Persons, who cultivate it for the sake of Variety. This Kind may be propagated by Cuttings, which should be planted in the Beginning of *April*, on a Border, where they may have only the Morning Sun; and in dry Weather they must be constantly watered, until they have taken good Root; after which time, they will require no farther Care, but to keep them clear from Weeds, till *Michaelmas*, at which time the Plants should be carefully taken up and transplanted, some of them into Pots, that they may be sheltered in Winter, and the others on a dry lean Soil in a warm Situation, where they will endure the Cold of our ordinary Winters very well; but in severe Winters they are frequently destroyed: therefore it is proper to

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preserve two or three of these Plants in Pots under Shelter, lest those in the open Air should be killed.

The second Sort was discovered by Dr. *Tournefort*, in *Castile*, where it grew plentifully on stony Ground. This is a low ever-green bushy Plant, somewhat like Thyme; but the Leaves are broader, and the whole Plant has a more dull and somewhat fetid Smell. This may be propagated by Seed, or by Cuttings, as the former Sort, and should be treated in the same manner.

The third Sort grows in several Places in *Italy* and *Sicily*, commonly on stony Land, or on old Walls. This is a low Plant, seldom rising above six Inches high, sending forth many upright Branches from the Root, which have Spikes of small Flowers, growing in Whorles on their Tops. This Sort is propagated by Seeds, which should be sown on a light lean Soil; and when the Plants are strong enough to transplant, some of them should be planted in Pots to be sheltered in Winter, and the others may remain where they were sown, observing to keep them clear from Weeds, which is all the Culture they require. This Sort seldom continues longer than two or three Years, so that Seeds should be sown every other Season to raise a Supply of young Plants.

These Plants are supposed to have the same Virtues as Savory, to which they are nearly allied.

Most of the aromatic verticillate Plants will endure the Cold of the most severe Winters in *England*, provided they grow on rocky stony dry Ground, where they will be short and stunted; and are also much stronger scented, than when they are sown or planted on a richer Soil; nay, most of them will grow on old Walls

and Buildings, where they will root into the Joints between the Stones or Bricks; and though they are exposed to the severest Winds, yet will they resist the Cold, when the Plants of the same Kinds, which are in the warmest Situations of the Garden, have been intirely destroyed. Of this there have been several Instances within the Memory of some Persons now living, that all the Rosemary, and many other of the like aromatic Herbs, have been destroyed in the Gardens; when some few Plants, which were growing on old Walls, have escaped; whereby their Species have been preserved in *England*.

THYMELÆA; Spurge-laurel.

To this Article must be added;

1. THYMELÆA *foliis lini*. C. B. P. Spurge-olive, or Laurel with Flax-leaves.

2. THYMELÆA *Alpina linifolia humilior, flore purpureo odoratissimo*. Inst. R. H. Dwarf Spurge-laurel of the Alps, with a Flax-leaf, and a very sweet purple Flower.

3. THYMELÆA *Alpina linifolia humilior, flore albo odoratissimo*. Inst. R. H. Dwarf Spurge-laurel of the Alps, with a Flax-leaf, and a very sweet white Flower.

4. THYMELÆA *villosa minor Lusitanica, polygoni folio*. Inst. R. H. Smaller hairy Portugal Spurge-laurel, with a Knot-grass-leaf.

5. THYMELÆA *linariæ folio, vulgaris*. Inst. R. H. Common Spurge-laurel, with a Toad-flax-leaf.

6. THYMELÆA *linariæ folio, Hispanica*. Inst. R. H. Spanish Spurge-laurel, with a Toad-flax-leaf.

7. THYMELÆA *latifolia Hispanica, oleæ foliis*. Inst. R. H. Broad-leav'd Spanish Spurge-laurel, with Olive-leaves.

8. THYMELÆA *argentea Italica, oleæ foliis*. Inst. R. H. Silvery Italian

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Italian Spurge-laurel, with Olive-leaves.

9. *THYMELÆA saxatilis, oleæ folio.* Inst. R. H. Rocky Spurge-laurel, with an Olive-leaf.

10. *THYMELÆA Alpina, folio utrinque incano, flore albo.* Inst. R. H. Alpine Spurge-laurel, with a Leaf hoary on both Sides, and a white Flower.

11. *THYMELÆA foliis polygalæ glabris.* C. B. P. Spurge-laurel with smooth Milkwort-leaves.

12. *THYMELÆA foliis polygalæ villosis.* Inst. R. H. Spurge-laurel with hairy Milkwort-leaves.

13. *THYMELÆA foliis chamelæ minoribus subhirsutis.* C. B. P. Spurge-laurel with smaller Widow-wail-leaves, which are somewhat hairy.

14. *THYMELÆA Hispanica, foliis myrti incanis.* Inst. R. H. Spanish Spurge-laurel, with hoary Myrtle-leaves.

15. *THYMELÆA Pyrenaica juniperifolia, ramulis surrectis.* Inst. R. H. Pyrenean Spurge-laurel, with a Juniper-leaf, and upright Branches.

16. *THYMELÆA foliis candicantibus, serici instar mollibus.* C. B. P. Spurge-laurel with whitish soft Leaves resembling Silk.

17. *THYMELÆA Cretica, oleæ folio, subtus villoso.* Tourn. Cor. Spurge-laurel of Crete, with an Olive-leaf, hairy underneath.

18. *THYMELÆA Cretica, oleæ folio utrinque glabro.* Tourn. Cor. Spurge-laurel of Crete, with an Olive-leaf, smooth on both Sides.

19. *THYMELÆA Pontica, citrei foliis.* Tourn. Cor. Pontic Spurge-laurel, with Citron-leaves.

20. *THYMELÆA orientalis minima, laureolæ folio, floribus glomeratis albis.* Tourn. Cor. The least Eastern Spurge-olive, with the com-

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mon Spurge-laurel-leaves, and white Flower growing in Clusters.

21. *THYMELÆA orientalis, buxi folio subtus villoso, flore albo.* Tourn. Cor. Eastern Spurge-laurel, with a Box-leaf, hairy on the Under-side, and a white Flower.

22. *THYMELÆA orientalis, salicis folio, flore albo odoratissimo.* Tourn. Cor. Eastern Spurge-laurel, with a Willow-leaf, and a white sweet-scented Flower.

23. *THYMELÆA linifoliæ similis, Africana, floribus pallidis odoratissimis.* Prod. Par. Bat. African Spurge-laurel, like the first Sort, with pale sweet-scented Flowers.

24. *THYMELÆA linifoliæ similis, Africana, foliis lucidis, latioribus & obtusis.* Par. Bat. African Spurge-laurel, like the first Sort, with broader shining and obtuse Leaves.

25. *THYMELÆA Africana, foliis lini, floribus in capitulum congestis.* Oldenl. African Spurge-laurel, with Flax-leaves, and Flowers collected in Heads.

26. *THYMELÆA Africana, rosmarini folio angustissimo breviori.* Oldenl. African Spurge-laurel, with a very narrow and shorter Rosemary-leaf.

27. *THYMELÆA Africana, rosmarini folio angustissimo longiori.* Oldenl. African Spurge-laurel, with a very narrow and longer Rosemary-leaf.

28. *THYMELÆA Africana, rosmarini folio, floribus longioribus.* Oldenl. African Spurge-laurel, with a Rosemary-leaf, and longer Flowers.

29. *THYMELÆA Africana, sanamundæ facie, ericæ foliis angustissimis.* Prod. Par. Bat. African Spurge-laurel, with the Face of Sanamunda, and very narrow Heath-leaves.

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30. *THYMELÆA Africana Tarton-zaire similis, floribus in capitulum congestis. Oldenl. African Spurge-laurel*, like the Tarton-zaire, with Flowers collected in a Head.

31. *THYMELÆA Africana, foliis rusci. Oldenl. African Spurge-laurel*, with Butchers-broom-leaves.

32. *THYMELÆA Africana frutescens, jasmini flore, foliis polygalæ. Oldenl. African shrubby Spurge-laurel*, with a Jasmine-flower, and Leaves of Milkwort.

33. *THYMELÆA Capensis, nepæ Theophrasti foliis aculeatis, flore parvo purpureo. Pluk. Phyt. Spurge-laurel of the Cape of Good Hope*, with prickly Furz-leaves, and a small purple Flower.

34. *THYMELÆA Americana frutescens, rosmarini folio, flore albo. Plum. Shrubby American Spurge-laurel*, with a Rosemary-leaf, and a white Flower.

The sixteen Sorts which are first-mentioned, grow wild in *Germany, Austria, Bohemia*, on the *Alps*, in *Spain, Portugal*, or the South of *France*, as they are particularized in their Names: these Plants will live in the open Air in *England*, provided they are planted in a warm Situation.

The seventeenth, eighteenth, nineteenth, twentieth, twenty-first and twenty-second Sorts, were discovered by *Dr. Tournefort* in the *Lewant*; from whence some of these Plants have been obtained, and are preserved in curious Botanic Gardens for Variety. These Sorts being also pretty hardy, will endure the Cold of our ordinary Winters very well in the open Air, provided they are placed in a sheltered Situation. All these Plants are propagated by Seeds, which should be sown in the Autumn as soon as they are ripe; for if they are kept out of the Ground till

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Spring, they seldom succeed; and if any of them do grow, they will remain in the Ground a whole Year, before the Plants come up. These Seeds should be sown on a shady Border, where they may only enjoy two or three Hours of the Morning Sun, and the Soil should be cool and loamy; in dry Weather they must be duly watered, and when the Plants are come up, they should be constantly kept clean from Weeds. In this Border the Plants should remain till *Michaelmas*, at which time a fresh Border of loamy Earth should be prepared to receive the Plants, which should also be in a shady Situation; then the Plants should be carefully taken up out of the Seed-bed, and planted in Rows about six or seven Inches asunder, and about four Inches Distance from each other in the Rows. When these Plants have taken new Root, they will require no farther Care, but to keep them clear from Weeds, and in dry Weather to refresh them now-and-then with Water, which will promote their Growth. If these Plants thrive well, they will be large enough to transplant by the following *Michaelmas*, into the Places where they are designed to remain; which should always be on a pretty strong loamy Soil, rather moist than dry; and if it be under Cover of Trees, provided they are not too much overhung, they will thrive better than in an open Situation, where they are exposed to the Sun.

These Plants continue green throughout the Year, which renders them worthy of a Place in good Gardens; where, if they are rightly disposed, they will afford an agreeable Variety. Most of these being low Shrubs, which seldom rise above two or three Feet high, are very

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proper to plant under Trees to fill up the Vacancies, where they will have a good Effect. The Seeds of the first Sort are used in Medicine, so that the Plants of this Kind are preserved in Physic-gardens; but they make the meanest Appearance of all the Sorts.

The twelve Sorts which are last-mentioned, are much tenderer than the former. All of these (except the last) grow near the *Cape of Good Hope*; from whence several of them have been brought into the *European* Gardens. These Plants may also be propagated by Seeds; but as they very rarely produce their Seeds in *England*, they are commonly propagated by laying down of their Branches; which, if rightly managed, will take Root in one Year. The best Time to lay down the Branches is in the Beginning of *April*; the Branches which are chosen to make Layers, should be of the former Year, or at most but two Years old; these should be a little twisted at the Part which is laid in the Ground, which will cause them to root the sooner: in dry Weather they must be duly watered, otherwise the Shoots will harden, which will prevent their putting out Roots. By the *April* following they will be rooted, when they may be cut off from the old Plants, and each planted into a small Pot, filled with fresh Earth; and if they are plunged into a very moderate Hot-bed, it will forward their taking new Root. These must be screened from the Sun every Day till they are rooted; after which time they must be inured to bear the open Air by degrees; and in the middle of *May*, they should be placed abroad in a sheltered Situation, where they will make an agreeable Variety amongst other Exotic Plants.

These Plants must be removed into the Green-house in Autumn, and placed where they may enjoy as much free Air as possible in mild Weather, but they must be protected from Frost. During the Winter Season they must be frequently refreshed with Water, for they are pretty thirsty Plants; but in very cold Weather it must be given to them sparingly. In Summer they must be placed abroad with the *Geraniums*, *Alaternoides*'s, and other Plants of the same Country, and treated in the same manner as hath been directed for those; with which Management they will thrive very well. The Flowers of these Plants, being very small, do not afford any great Pleasure, but for the singular Oddness of the Leaves and Branches. These Plants deserve a Place in good Green-houses, for the sake of Variety.

The last Sort is more tender than any of the rest, this being a Native of the warmer Parts of *America*. This was discovered by Father *Plumier*, in some of the *French* Settlements in *America*; and hath been observed growing in great Plenty, at the *Havannah*, by the late Dr. *William Housoun*, who sent the Seeds to *England*: it was also found by Mr. *Robert Miller* at *Campechy*, who also sent the Seeds to *England*; from which many Plants have been raised.

The Seeds of the Plants should be sown early in the Spring in Pots of fresh Earth, and then plunged into a moderate Hot-bed of Tanners-bark; observing frequently to water the Pots, to keep the Earth moist, which will bring up the Plants in about six Weeks time. When these Plants are about two Inches high, they should be shaken out of the Seed-pots, and

each planted in a small Pot filled with fresh loamy Earth; and then plunged into a moderate Hot-bed of Tanners Bark, where they must be shaded from the Heat of the Sun, until they have taken new Root; after which time they must be treated in the same manner as hath been directed for other Exotic Plants, which are the Produce of the hottest Country.

In this Hot-bed the Plants may remain till about *Michaelmas*, when the Nights will begin to be too cold for these Plants; therefore they should be removed into the Stove, and plunged into the Bark-bed. During the Winter Season these Plants must be kept very warm, especially while they are young, because they make but little Progress the first Year; and if they are transplanted the first Winter, they do not recover it in a long time after. These Plants should constantly remain in the Stove, and should be treated in the same manner as hath been directed for the *Sariana*.

TITHYMALUS, Spurge.

To this *Article* must be added;

1. TITHYMALUS *helioscopius*. C. B. P. Sun-spurge, or Wartwort.
2. TITHYMALUS *rotundis foliis, non crenatis*. H. L. Petty-spurge.
3. TITHYMALUS *maritimus supinus annuus, pepelis dictus*. Raii Syn. Ed. 3. Small purple Sea-spurge.
4. TITHYMALUS *sive esula exigua*. C. B. P. Small dwarf annual Spurge.
5. TITHYMALUS *maritimus minor Portlandicus*. Raii Syn. Ed. 3. Small Sea or Portland Spurge.
6. TITHYMALUS *platyphyllos Fuchsi*. J. B. Broad-leav'd Spurge.
7. TITHYMALUS *segetum longifolius*. Cat. Cant. App. Long-leav'd Corn-spurge.
8. TITHYMALUS *verrucosus*. J. B. Rough-fruited Spurge.

9. TITHYMALUS *Hibernicus*. Merr. Pin. Knotty rooted Spurge, commonly called *Mackinboy* by the *Irish*.

10. TITHYMALUS *characias rubens peregrinus*. C. B. P. Foreign red Wood-spurge.

11. TITHYMALUS *sylvaticus, lunato flore*. C. B. P. Wood-spurge with Flowers shaped like a Cresent.

12. TITHYMALUS *characias, radice repente*. H. R. Monsp. Wood-spurge with a creeping Root.

13. TITHYMALUS *characias angustifolius*. C. B. P. Narrow-leav'd Wood-spurge.

14. TITHYMALUS *characias, folio serrato*. C. B. P. Wood-spurge with Leaves sawed on their Edges.

15. TITHYMALUS *characias, radice pyriformi*. Mor. H. R. Blas. Wood-spurge with a pear-shaped Root.

16. TITHYMALUS *characias, foliis minoris folio*. Mor. H. R. Blas. Wood-spurge with a smaller Willow-leaf.

17. TITHYMALUS *tuberosa pyriformi radice*. C. B. P. Spurge with a tuberosc Root, shaped like a Pear.

18. TITHYMALUS *linariae folio, lunato flore*. Mor. Hort. Blas. Spurge with a Toad-flax-leaf, and a moon-shaped Flower.

19. TITHYMALUS *arborescens linifolius*. H. R. Par. Tree-spurge with Flax-leaves.

20. TITHYMALUS *amygdaloides angustifolius*. Tabern. Icon. Narrow-leav'd Spurge.

21. TITHYMALUS *orientalis, latissimo folio, villosus, flore lunato*. Tourn. Cor. Eastern hairy broad-leav'd Spurge, with a moon-shaped Flower.

22. TITHYMALUS *orientalis, foliis folio, caule purpureo, flore magno*. Tourn. Cor. Eastern Spurge, with a Willow-

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Willow-leaf, a purple Stalk, and a large Flower.

23. *TITHYMALUS orientalis cyparissias patulus, foliis superis lobatis, flore minimo.* Tourn. Cor. Eastern Cypress-spurge, with spreading Branches, the upper Leaves shaped like a Spear, and a very small Flower.

24. *TITHYMALUS arboreus, humilior & patulus, latiore folio.* Tourn. Cor. Low spreading Tree-spurge, with a broader Leaf.

25. *TITHYMALUS arboreus, humilior & patulus, angustiore folio.* Tourn. Cor. Low-spreading Tree-spurge, with a narrower Leaf.

26. *TITHYMALUS Græcus, amygdali folio acutissimo & glauco, caule purpureo.* Tourn. Cor. Greek Spurge, with a sharp-pointed Almond-leaf, and a purple Stalk.

27. *TITHYMALUS Græcus helioscopius maximus, foliis eleganter crenatis.* Tourn. Cor. Greatest Sun-spurge of Greece, with Leaves elegantly notched.

28. *TITHYMALUS orientalis palustris, tuberosa radice, lathyridis facie.* Tourn. Cor. Marsh Eastern Spurge, with a tuberose Root, and the Face of Cataputia minor.

29. *TITHYMALUS orientalis, latissimo folio, villosus, flore aureo, segmentis rotundioribus.* Tourn. Cor. The broadest-leav'd hairy Eastern Spurge, with a golden Flower, having rounder Segments.

30. *TITHYMALUS orientalis, anacamferotis folio, flore magno cristato.* Tourn. Cor. Eastern Spurge, with an Orpine-leaf, and a large crested Flower.

31. *TITHYMALUS orientalis, anacamferotis folio, tenuissime serrato, flore minori non cristato.* Tourn. Cor. Eastern Spurge, with an Orpine-leaf finely sawed, and a smaller Flower not crested.

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32. *TITHYMALUS orientalis, latissimo folio glauco & glabro.* Tourn. Cor. Eastern Spurge, with a very broad smooth sea-green Leaf.

33. *TITHYMALUS orientalis, patulus & humilior, salicis folio villosus.* Tourn. Cor. Low spreading Eastern Spurge, with a hairy Willow-leaf.

34. *TITHYMALUS orientalis, linariae folio, humillimus.* Tourn. Cor. The lowest Eastern Spurge, with a Toad-flax-leaf.

35. *TITHYMALUS arboreus, caule corallino, folio hyperici, pericampio barbato.* Boerb. Ind. alt. Tree-spurge with a red Stalk, a St. John's-wort-leaf, and a bearded Cover to the Fruit.

36. *TITHYMALUS arboreus altissimus, folio salicis, caulibus rubentibus.* Boerb. Ind. alt. The tallest Tree-spurge, with a Willow-leaf, and reddish Stalks.

37. *TITHYMALUS Lugdunensis, laureolæ folio.* D. Gouffon. Boerb. Ind. alt. French Spurge, with a Spurge-laurel-leaf.

38. *TITHYMALUS marinus, folio retuso, Terracinenfis.* Barr. Obs. Sea-spurge with a blunt Leaf.

39. *TITHYMALUS folio longo glauco, caule rubro, capsulis verrucosis, elatior Siculus.* Raii Hist. Taller Spurge of Sicily, with a long sea-green Leaf, a red Stalk, and warted Seed-vessels.

40. *TITHYMALUS amygdali folio angustiori, Montis Pollini.* H. Cath. Sicilian Spurge, with a narrow Almond-leaf.

41. *TITHYMALUS amygdali folio breviori latiori hirsuto, Montis Pollini.* H. Cath. Sicilian Spurge, with a broader and shorter hairy Almond-leaf.

42. *TITHYMALUS arboreus, tuberosa radice, mollioribus foliis, sem verrucoso aspero.* Bocc. Mus. Tree-spurge with a knobbed Root

Leaves, and a rough warted Seed.

43. *TITHYMALUS arboreus Africanus*. *Inst. R. H.* African Tree-spurge.

44. *TITHYMALUS arboreus Americanus*, *cotini folio*. *Hort. Amst.* American Tree-spurge, with a Venice Sumach-leaf.

45. *TITHYMALUS Americanus arboreus*, *cotini foliis minoribus*, & *verticillatim nascentibus*. *Plum. Cat.* American Tree-spurge, with smaller Venice Sumach-leaves, growing in Whorles.

46. *TITHYMALUS Americanus arboreus*, *foliis linariæ*. *Plum. Cat.* American Tree-spurge, with Toad-flax-leaves.

47. *TITHYMALUS qui pepulis magnitima fruticosa geniculata*. *Sloan. Cat.* Shrubby American Sea-spurge, with a jointed Stalk.

48. *TITHYMALUS Americanus characias variegatus*, *flore albo*, *fructu villosa*. *Hoult.* American striped Spurge, with a white Flower, and a hairy Fruit.

49. *TITHYMALUS Curassavicus*, *salicis & atriplicis foliis hirsutis*, *caulibus subrubentibus*. *Prod. Par. Bat.* Spurge from Curasso, with hairy Leaves, like the Willow or Orach, and reddish Stalks.

50. *TITHYMALUS Curassavicus*, *salicis & atriplicis foliis glabris*, *caulibus viridantibus*. *Prod. Par. Bat.* Spurge from Curasso, with smooth Willow or Orach-leaves, and greenish Stalks.

51. *TITHYMALUS Americanus annuus erectus*, *caule triangulari*, *foliis variis*. *Hoult.* Upright annual American Spurge, with a triangular Stalk, and variable Leaves.

52. *TITHYMALUS Americanus annuus erectus latifolius*, *foliolis juxta flores albis*. *Hoult.* Upright annual American Spurge, with broad Leaves,

and the small Leaves near the Flowers white.

53. *TITHYMALUS maritimus*, *Barbadiensis & Bermudensis*, seu *parvulus minor Americanus ramosissimus*. *Pluk. Phyt.* American branching Sea-spurge.

54. *TITHYMALUS dulcis*, *parietariæ foliis hirsutis*, *floribus ad caulium nodos conglomeratis*. *Sloan. Cat.* Sweet American Spurge, with hairy Pellitory-leaves, and Flowers growing in Clusters from the Joints of the Stalk.

55. *TITHYMALUS erectus acris*, *parietariæ foliis glabris*, *floribus ad caulium nodos conglomeratis*. *Sloan. Cat.* Upright acrid Spurge, with smooth Pellitory-leaves, and Flowers growing in Clusters from the Joints of the Stalk.

56. *TITHYMALUS Americanus annuus erectus ramosissimus*, *ocymicaryophyllati foliis*. *Hoult. Cat.* Upright annual branching American Spurge, with Leaves like the Bush-basil.

57. *TITHYMALUS maritimus Americanus procumbens*, *foliis subrotundis rarioribus*, *fructu majore*. *Hoult.* Trailing American Sea-spurge, with roundish Leaves, and a larger Fruit.

58. *TITHYMALUS Americanus procumbens*, *foliis subrotundis*, & *ab altera parte auritis*. *Hoult.* Trailing American Spurge, with roundish Leaves, and in other Parts the Leaves are eared.

59. *TITHYMALUS exiguus glaber*, *nummulariæ folio*. *Inst. R. H.* Small smooth Spurge, with a Moneywort-leaf.

60. *TITHYMALUS exiguus villosus*, *nummulariæ folio*. *Inst. R. H.* Small hairy Spurge, with a Moneywort-leaf.

The eight first Sorts, being annual Plants, which grow wild in several Parts

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Parts of *England*, are rarely admitted into Gardens; but some of them generally come up as Weeds, in most cultivated Lands. The most common of these are the first, second and fourth Sorts, the others growing but in some particular Parts of *England* wild. These Plants abound with a milky Juice, which some People apply to Warts to get 'em off; but this should be done with Discretion, otherwise there may be Danger of injuring the Part where it is applied, because it is a great Caustic. All these Sorts will come up from Seeds, whenever they are scattered; so that whoever hath a Desire to preserve them, need only allow them a Place; for they will require no Care to propagate them.

The ninth Sort grows wild in several Parts of *Ireland*, where it was formerly much in Use amongst the Natives of that Country, and was the chief Physic used by them for all Distempers, till of late, that they have gotten the Knowledge of *Mercury*, which has obtained so much with them, as to put this Plant quite out of Use.

This is an abiding Plant, having thick knobbed Roots, which may be separated every other Year, to propagate the Plant, by those who desire it; though indeed it is rarely preserved but in Botanic Gardens, for the sake of Variety. It is very hardy, and will thrive in almost any Soil or Situation, and dies to the Root every Autumn, and the Spring following comes up again. This may be planted in Wilderesses, where it will thrive very well under the Drip of Trees, and will serve to fill up in such Places where few other better Plants will live.

The tenth Sort is supposed to grow wild in *England*; but I believe, some People have taken the

common Wood-spurge for this, when it has appeared with Stalks somewhat redder than ordinary. This, and the ten following Sorts, grow wild in *France*, *Italy*, and *Germany*, from whence they have been procured by some Persons who are curious in Botany. All these are very hardy Plants, and may be propagated by Seeds, which should be sown in a Bed of fresh Earth, in the Spring; and when the Plants come up, they will require no farther Care, but to clear them from Weeds; and where they are too thick, some of them should be drawn out, to give those Plants which are designed to remain, room to grow until *Michaelmas*, when they should be planted into Woods, and other Places covered with Trees; where they will make an agreeable Variety.

The fourteen Sorts next following were discovered by Dr. *Tournefort* in the *Levant*; from whence he sent their Seeds to the Royal Garden at *Paris*, where many of them were raised, and have since been communicated to several Persons who are curious in Botany in *England*. These, being all of them very hardy Plants, will be very proper to intermix with the Sorts before-mentioned, in Wilderesses Quarters; where, if they have a dry Soil, they will thrive very well, and make an agreeable Appearance. Some of these Sorts die to the Root every Autumn, and rise again the following Spring; but they will not require any Care to preserve them; the only Culture they demand is to keep them from being over-borne by very large Weeds.

The thirty-fifth, thirty-sixth and thirty-seventh Sorts, are somewhat tenderer than either of the former; therefore some Plants of each Kind should be kept in Pots to be sheltered
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in Winter, for fear those which are planted abroad should be destroyed. These may be propagated by Cuttings, which should be taken off from the old Plants a Week before they are planted, and laid in a dry Place, that the wounded Part may heal, otherwise they will rot. These Cuttings may be planted in a Bed of fresh undunged Earth, and shaded with Mats until they have taken Root; after which time they will require no farther Care, but to keep them clear from Weeds till *Michaelmas*; when they should be transplanted some of them into Pots, and the others under Trees on a dry Soil, and in a warm Situation, where they will endure the Cold of our ordinary Winters very well; but in severe Frosts, they are frequently destroyed. Those Plants in Pots should be removed into Shelter towards the End of *October*, and placed where they may have as much free Air as possible in mild Weather, otherwise their Shoots will be weak and unfightly; for if they are only protected from very hard Frosts, it is all these Plants require. These Sorts grow to the Height of six or seven Feet, and may be allowed a Place in Gardens, for the sake of Variety.

The thirty-eighth Sort is a very hardy Plant, which propagates itself very fast by its creeping Roots; wherefore it should not be planted near better Plants, because it will spread so far, and intermix its Roots with them, and destroy them. This Sort may be planted in some Quarters under Trees, where the Soil is very poor, in which it will thrive and fill up better than most other Plants.

The thirty-ninth and forty-second Sorts being somewhat tender, some of the Plants should be preserved in Pots, and sheltered in Winter; and

the others may be planted on a dry Soil, and in a warm Situation, where they will endure the Cold of our common Winters, and will add to the Variety.

The fortieth and forty-first Sorts are biennial Plants, which seldom continue long after they have perfected their Seeds. These being very hardy Plants, will grow in any Situation, provided they have a dry Soil; and if their Seeds are permitted to scatter, the Plants will come up and thrive without any other Care, than to keep them from being over-borne by large Weeds.

The forty-third Sort, being tenderer than either of the former, must be placed in a warm Green-house in Winter, otherwise it will not live in this Country. This is propagated by Cuttings, which must lie to dry a Fortnight before they are planted; for as the whole Plant abounds with a milky Juice, so, if the wounded Parts are not well healed over before they are planted, they are very subject to rot. The best Time for planting of these Cuttings is in *July*, that they may be well rooted before Winter. These should be planted each into a separate small Pot, and if they are plunged into a very moderate Hot-bed, it will cause them to root the sooner. They should be now-and-then refreshed with Water; but it must not be given them in large Quantities, lest it rot them. When they are rooted, they must be inured to bear the open Air by Degrees, into which they should be removed, and placed in a warm Situation, where they may remain till *Michaelmas*, when they must be removed into the Green-house, and placed in the warmest Part of it. During the Winter Season these Plants must have but little Water, especially if they

they have no artificial Heat; for Moisture is very apt to rot them in cold Weather.

The forty-fourth and forty-fifth Sorts grow plentifully in the Island of *Jamaica*, and in several other Places in the *West-Indies*. These being very tender Plants, must be preserved in warm Stoves, otherwise they will not live in this Country. They may be propagated by Cuttings in the Summer Months, which must be treated in the same manner as hath been directed for the *Euphorbiums*, in the former Volumes of the *Gardeners Dictionary*; with which Management these Plants will thrive extremely well, and will make an agreeable Variety amongst other Exotic Plants in the dry Stove.

The forty-sixth Sort was discovered by Father *Plumier* in the *French Settlements in America*, and was found by the late Dr. *Houfoun* at the *Havannah*, growing in great Plenty. This Sort may be propagated by Cuttings as the former, and treated in the same manner.

The forty-seventh Sort grows plentifully in *Jamaica*, and several other Parts of *America*. This may be propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate small Pot filled with fresh light sandy Earth, and then plunged into a Hot-bed of Tanners Bark, where they should be shaded from the Sun until they have taken Root; after which time they should have free Air admitted to them in warm Weather, and must be refreshed two or three times in a Week with Water; but as these Plants are full of Juice, they should not have too much Moisture, lest it rot them. In this Hot-bed the Plants may remain till about *Michaelmas*,

when they should be removed into the dry Stove; and may afterwards be treated in the same manner as the three former Sorts.

The forty-eighth Sort was found growing plentifully on the sandy barren Ground at *La Vera Cruz*, by the late Dr. *Houfoun*, who observed that all the Plants which he saw were variegated, so that he supposed they continued to come up in like manner from the Seeds. This is a very beautiful Plant, and being tender, must be treated as the Sorts last-mentioned.

The forty-ninth and fiftieth Sorts were found in great Plenty at *Campechy*, by the late Dr. *Houfoun*; from whence he sent their Seeds to *England*, where several of the Plants were raised. These Plants have their lower Leaves narrow and intire; and those which are produced near the upper Part of the Shoots, are broad and indented, somewhat like those of the Garden Orach. The Flowers are produced at the Extremity of the Branches, which are of a greenish White, having little Beauty in them; and they soon fall off, so that the Plants rarely produce good Seeds in *England*.

These Plants are propagated by Seeds, which should be sown on a Hot-bed early in the Spring; and when the Plants come up, they should be each transplanted into a separate Pot filled with fresh light Earth, and then plunged into the Hot-bed again, where they should be shaded until they have taken new Root; after which time they should be treated after the same manner as the tender Sorts before-mentioned. And in Winter, if these are plunged into the Bark-bed in the Stove, the Plants may more certainly be maintained, than if placed on Shelves in the dry Stove; but then they should not have

have too much Water given them in Winter, lest it rot them. With this Management the Plants may be preserved two or three Years, in which time they will grow to the Height of seven or eight Feet, and produce many Branches.

The ten last-mentioned Sorts are all of them annual Plants; wherefore their Seeds should be sown early in the Spring on a moderate Hot-bed; and the Plants, when they are come up, must be planted into Pots, and plunged into a Hot-bed; for being too tender to thrive in the open Air in this Country, they must be continued in the Hot-bed; or, when they are pretty strong, they may be removed into the Stove, where they will flower in June and July, and their Seeds will ripen soon after, which will scatter themselves as soon as they are ripe, if they are not gathered; so that when the Plants are permitted to shed their Seeds, there will be a sufficient Supply of young Plants come up, in whatever Pots stand near them, as also in the Tan, if it be not disturbed. The first five of these Sorts grow usually about two Feet high or more; the next three seldom rise above a Foot high, and the two last trail on the Surface of the Ground, so that these make but an indifferent Appearance.

TORDYLIUM, Hartwort.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of five unequal heart-fashioned Petals, which are placed circularly, and rest on the Empalement, which afterwards becomes an almost-round Fruit, composed of two flat Seeds, which easily ast off their Covering, with a raised Border, which is commonly indented.

The Species are;

1. TORDYLIUM *maximum*. *Inst. R. H.* The greatest Hartwort.

2. TORDYLIUM *Narbonense minus*. *Inst. R. H.* Small Hartwort of Narbonne.

3. TORDYLIUM *Apulum minimum*. *Col. P.* 4. 124. The smallest Hartwort of Apulia.

4. TORDYLIUM *minus, limbo granulato, Syriacum*. *Mor. Umb.* Small Hartwort of Syria, with a granulated Border.

5. TORDYLIUM *folio longo angusto, flore albo magno, semine elegantissime & profundissime crenato albo*. *Boerb. Ind. alt.* Hartwort with a long narrow Leaf, a large white Flower, and a white Seed beautifully and deeply notched.

6. TORDYLIUM *orientale, Secacul Arabum dictum Rawwolfo*. *Boerb. Ind. alt.* Eastern Hartwort, called by Rawwolf, Secacul of the Arabians.

7. TORDYLIUM *Lusitanicum, cicutæ folio, semine striato*. *Inst. R. H.* Portugal Hartwort, with a Hemlock-leaf, and a streaked Seed.

8. TORDYLIUM *album, facie tordylii lutei Columnæ*. *Hort. Cath.* White Hartwort, with the Appearance of Columna's yellow Hartwort.

All these are annual Plants, which perish soon after they have perfected their Seeds. The first Sort is found wild in several Parts of England, and the second Sort has been by some mentioned as an indigenous Plant of this Country; but I believe it is nowhere found wild, unless where the Seeds have been purposely scattered. These Plants are preserved in the Gardens of some Persons who are curious in Botany; but there is little Beauty in them.

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They are propagated by Seeds, which should be sown in the Autumn shortly after they are ripe ; when the Plants will soon appear, and are very hardy, so that they require no farther Care, but to keep them clear from Weeds ; and where they come up too close together, they should be thinned so as to leave them six Inches asunder. In *June* following the Plants will flower, and their Seeds will ripen in *August* ; which if permitted to scatter on the Ground, will produce a Supply of Plants without any Trouble. If the Seeds of these Plants are kept out of the Ground till Spring, they seldom succeed ; for if any Plants are produced from the Seeds then sown, they commonly perish before they have perfected their Seeds ; whereas those which are sown in Autumn rarely fail. These Plants will grow on any Soil or Situation ; wherefore they may be put into any obscure Part of the Garden.

TORMENTILLA, Tormentil.

The Characters are :

The Flower consists of four Petals, which are placed orbicularly, and expand in form of a Rose ; out of whose one-leaved Empalement (divided into several Segments, and shaped like a Basin) arises the Pointal, which afterward becomes an almost globular Fruit, in which many Seeds are gathered into a sort of little Head, covered with the Empalement : to which Notes must be added, That there are commonly seven Leaves growing on the Top of the Foot-stalk.

The Species are ;

1. TORMENTILLA *syvestris*. C. B. P. Wild Tormentil, or Septfoil.

2. TORMENTILLA *radice repente*. *Inst. R. H.* Creeping-rooted Tormentil.

3. TORMENTILLA *Alpina vulgaris major*. C. B. P. Greater Tormentil of the Alps.

4. TORMENTILLA *Cassubica major*. *Inst. R. H.* Greater Tormentil, with deep cut Leaves.

5. TORMENTILLA *Cassubica minor*. *Inst. R. H.* Smaller Tormentil, with deep-cut Leaves.

The first Sort grows wild everywhere on dry Pastures, and on Commons in most Parts of *England*. The Roots of this Plant have been frequently used for Tanning of Leather, in Places where Oak-bark is very scarce. This Root is also much used in Medicine, and is accounted the best Astringent in the whole Vegetable Kingdom.

The second Sort is found in some particular Parts of *England* growing wild: the third Sort grows on the Alps, and the fourth and fifth Sorts grow in *Denmark*, *Sweden*, and some other Northern Countries ; but are rarely preserved, unless in some Botanic Gardens, for the sake of Variety. It requires no Care to propagate these Plants, since, if their Seeds are sown in almost any Soil or Situation, the Plants will come up and flourish without any other Care, but to prevent their being over-run with great Weeds.

TOXICODENDRON, The Poison-oak.

To this Article must be added ;

1. TOXICODENDRON *rectum*, *foliis minoribus glabris*. *Hort. Elth.* Upright Poison-tree, with smaller smooth Leaves.

2. TOXICODENDRON *rectum pentaphyllum glabrum, foliis latioribus*. Smooth five-leaved upright Poison-tree, with broader Leaves.

3. TOXICODENDRON *amplexicaule, foliis minoribus glabris*. *Hort. Elth.* Climbing Poison-tree, with smaller smooth Leaves.

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4. *TOXICODENDRON foliis alatis, fructu rhomboide. Hort. Elth.* Poison-tree with winged Leaves, and a Fruit shaped like a *Rhombus*.

The first Sort here mentioned grows erect to the Height of five or six Feet: the Leaves of this Kind are much smaller than those of the common Poison-oak; but the Branches of this are flexible, so that it will never make a Shrub of any great Height or Strength.

The second Sort was found in *Maryland*, from whence the Seeds were sent to *England*. This grows more upright than the former, and by the Appearance of the young Plants, seems to be a Shrub of much larger Growth.

The third Sort is a Native of *Virginia*, from whence I received the Seeds: this puts out Roots from the Branches, which fasten themselves to the Stems of Trees, or the Joints of Walls, by which the Branches are supported.

The fourth Sort is the same with the third, mentioned in the former Volumes of the *Dictionary*, only differing in Sex; this being the Female, and the other, the Male Tree. All the Sorts of *Toxicodendron* differ in Sex, the Male never producing any Fruit, having small herbaceous Flowers, without any Embryo's.

All these Sorts are hardy Plants, which will thrive in the open Air in this Country; but they love a moist Soil, and should be planted under Trees in Wildernesses, where they will thrive very well, and endure the Cold better than where they have a more open Exposure. They may be propagated by Seeds, or from Suckers, which some of the Sorts send forth in Plenty, or by laying down the Branches of those Sorts which do not put forth Suckers; which in one Season will be sufficiently

rooted to transplant; when they should be planted, where they are designed to remain. The best Time to remove these Shrubs, is in *March*, because then there will be no Danger of their suffering by Frost.

The Wood of these Shrubs is accounted very poisonous, either by the handling of it, or smelling it when it is burning. Mr. *Dudley* has given an Account of the poisonous Quality of these Trees, in the *Philosophical Transactions*, where he mentions a Neighbour of his in *New England*, who was blind for several Days with handling the Wood; and another Gentleman of that Country, who was sitting by his Fire-side in Winter, in which was some of the Poison-tree burning, the Smoke of which swelled him for several Days. But he says it has this Effect only on particular Persons; for his own Brother would handle and chew it, without any Harm; and that by the same Fire some Persons shall be poisoned, and others not the least affected. This Poison is not mortal, but will go off itself in a few Days, like the Sting of a Bee; but the People generally apply Plantain-water, or Sallet-oil and Cream, to the Part affected.

When a Person is poisoned by handling of this Wood, in a few Hours he feels an itching Pain, which provokes a Scratching, which it followed by an Inflammation and Swelling. Sometimes a Person has had his Legs poisoned, which have run with Water. Some of the Inhabitants of *America* affirm, they can distinguish this Wood by the Touch in the Dark, from its extreme Coldness, which is like Ice. But what he mentions of this poisonous Quality, is applicable to the fourth Sort here mentioned, which by his Description agrees with this *Species*.

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This Sort of Poison-tree is not only a Native of *America*, but grows plentifully on the Mountains in *Japan*, where it is called *Fasi No Ki*; and from this Tree they extract one Sort of their Varnish or *Lacca*, which they use for Japanning their Utensils. But this is not their best Kind of Varnish, that being made of the Juice of another Tree, which is also very poisonous, and nearly allied to this, and from which some Writers think it differs only by Culture.

The Juice of this Tree is milky, when it issues out of the wounded Part; but soon after it is exposed to the Air, it turns black, and has a very strong fetid Scent, and is corroding. For I have observed, on cutting off a small Branch from one of these Shrubs, that the Blade of the Knife has been changed black in a Moment's time, so far as the Juice had spread over it; which I could not get off without grinding the Knife.

As this Tree is very common in *Virginia*, *Carolina* and *New England*, it would be well worth the Inhabitants Trial, to make this Varnish.

TRACHELIUM, Throatwort.

The Characters are;

It hath a funnel-shaped Flower, composed of one Leaf, and cut into several Parts at the Top; whose Empalement afterward becomes a membranaceous Fruit often triangular, and divided into three Cells, which are full of small Seeds.

The Species are;

1. *TRACHELIUM azureum umbelliferum. Pon. Bald.* Blue umbelliferous Throatwort.

2. *TRACHELIUM umbelliferum violaceum, foliis laciniatis. Inst. R. H.* Throatwort with violet-coloured Flowers growing in Umbels, and jagged Leaves.

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3. *TRACHELIUM villosum, floribus confertim ex foliorum alis nascentibus. Inst. R. H.* Hairy Throatwort, with Flowers growing in Clusters from the Wings of the Leaves.

4. *TRACHELIUM petraeum, floribus in capitulum congestis. Inst. R. H.* Rock Throatwort, with Flowers collected in Heads.

5. *TRACHELIUM minus Africanum, floribus violaceis, per caulem sparsis. Inst. R. H.* Smaller African Throatwort, with violet-coloured Flowers, growing thinly on the Stalks.

6. *TRACHELIUM Americanum, sonchi folio, flore albo longissimo. Plum.* American Throatwort, with a Sow-thistle-leaf, and a very long white Flower.

This first Sort is preserved in many curious Gardens for the Beauty of its Flowers, which continue a long time, and are succeeded by new Umbels on the Tops of the younger Shoots, so that the Plants continue in Beauty for some Months. This Plant is supposed to be a Native of some of the Islands in the *Archipelago*, from whence it was first brought to *Italy*, and hath been since spread to many Parts of *Europe*. It is hardy in respect to Cold, provided it has a proper Situation, which should be in the Crevices of old Walls, where it will abide the Cold very well; when those Plants which grow on warm Borders, are frequently destroyed. This Plant has propagated itself by Seeds, on the Walls of some Gardens, where it has been planted; and those Plants which have grown on the Walls, continue, when those which were in Pots, and preserved with Care, have been intirely destroyed.

The second Sort grows upon the Mountains of *Brescia*, about the Mouths

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Mouths of Caves, between the hardest Rocks, so that it is very difficult to get out the Roots.

The third Sort grows on the Rocks in several Places in the *Levant*.

All these Sorts are propagated by Seeds, which should be sown soon after they are ripe; for if they are kept out of the Ground till the Spring, they seldom grow. These Seeds should be sown in Pots filled with fresh undunged Earth, and placed in a shady Situation till the Beginning of *October*, when they may be removed into a more open Exposure; where they may have as much Sun as possible, but be sheltered from cold Winds. When the Cold is severe, they should be placed under a Hot-bed Frame, where they may enjoy as much free Air as possible in mild Weather; but they must be screened from hard Frosts, otherwise they are frequently destroyed.

They may also be propagated by Off-sets, or Cuttings, which may be taken off in the Spring or Summer Months; and should be planted in Pots filled with fresh undunged Soil, and placed on a shady Situation until they have taken Root, when they may be removed into a sheltered Part of the Garden; where being mixed with other hardy Exotic Plants, they will afford an agreeable Variety.

But as these Plants thrive better on old Walls, (when by Accident they have arisen there from Seeds) their Seeds, when ripe, may be scattered on such Walls as are old, or where there is Earth lodged sufficient to receive the Seeds; where the Plants will resist the Cold much better, and they will continue longer, than when sown in the full Ground; and when a few of the Plants are established on the Walls, they will shed their Seeds, so that they will

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maintain themselves without any farther Care. I have observed some Plants of the first Kind, which have grown from the Joints of a Wall, where there has not been the least Earth to support them; which have resisted the Cold, tho' they have been greatly exposed to the Winds; so that these Plants are very proper to cover the Walls of Ruins, where they will have a very good Effect.

The fourth Sort grows on the Mountains in *Italy*, from between the Crevices of the Rocks, from whence it is difficult to get out the Roots. This may be treated in the same manner as the former Sorts, and will thrive better on Walls, than if sown or planted in the Earth.

The fifth Sort is an annual Plant, which was brought from the *Cape of Good Hope* to *Holland*, where it has been preserved in some of their curious Botanic Gardens. This Sort will succeed well, if the Seeds are permitted to scatter on the Pots of Earth which are near them; provided the Pots are placed in the Green-house, where the Plants will come up and flower early the following Summer, and will have time to perfect their Seeds; whereas, when the Seeds are sown in the Spring, the Plants will not flower till *August*; so that, if the Autumn should prove bad, they will not produce Seeds.

The sixth Sort grows plentifully in *Jamaica*, and several other Places in the warm Parts of *America*, where it grows in moist Places by the Sides of Rivers. This may be propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be transplanted on another Hot-bed, to bring the Plants forward; and then they may be treated in the same manner as hath been directed for the tender Sorts of

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Rapuntium. With which Management this Plant will thrive, and produce its Flowers; and if the Seeds are permitted to scatter, or are sown as soon as they are ripe, if the Pots are kept in the Stove, the Plants will come up, and flourish much better than those sown in the Spring.

TRAGACANTHA, Goats-thorn.

To this Article must be added;

1. *TRAGACANTHA altera, Poterium forte Clusio. J. B.* Another Goats-thorn, with Leaves falling off in the Winter.

2. *TRAGACANTHA Alpina semper-virens, floribus purpurascens. Inst. R. H.* Ever-green Alpine Goats-thorn, with purplish Flowers.

3. *TRAGACANTHA Cretica, foliis minimis incanis, flore majore albo. Tourn. Cor.* Goats-thorn of Candy, with very small hoary Leaves, and a larger white Flower.

4. *TRAGACANTHA orientalis humillima, flore magno albo. Tourn. Cor.* A very low Eastern Goats-thorn, with a large white Flower.

5. *TRAGACANTHA orientalis humillima, barbæ Jovis folio. Tourn. Cor.* Eastern Goats-thorn, with a Jupiter's-beard-leaf.

6. *TRAGACANTHA orientalis humillima, foliis angustissimis argenteis. Tourn. Cor.* A very low Eastern Goats-thorn, with very narrow silver Leaves.

7. *TRAGACANTHA orientalis humillima, se spargens, floribus spicatis. Tourn. Cor.* A very low spreading Eastern Goats-thorn, with Flowers growing in Spikes.

8. *TRAGACANTHA orientalis humillima incana, flore purpurascens. Tourn. Cor.* A very low hoary Eastern Goats-thorn, with a purplish Flower.

9. *TRAGACANTHA orientalis erectior, foliis vicicæ glabris, & ramis*

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tomentosis. Tourn. Cor. A more upright Eastern Goats-thorn, with smooth Vetch-leaves, and woolly Branches.

10. *TRAGACANTHA orientalis humilis, candidissima & tomentosa, floribus in foliorum alis in capitulum densum nascentibus. Tourn. Cor.* A lower very white and woolly Eastern Goats-thorn, with Flowers growing in thick Heads, from the Wings of the Leaves.

11. *TRAGACANTHA orientalis humilis, floribus luteis dense congestis in foliorum alis. Tourn. Cor.* A low Eastern Goats-thorn, with yellow Flowers thick-set in the Wings of the Leaves.

12. *TRAGACANTHA humilior, luteis floribus. C. B. P.* A lower Goats-thorn, with yellow Flowers.

13. *TRAGACANTHA orientalis, floribus luteis in capitulum longo pediculo donatum congestis. Tourn. Cor.* Eastern Goats-thorn, with yellow Flowers gathered into a Head, on a long Foot-stalk.

14. *TRAGACANTHA orientalis vesicaria, floribus purpureis in capitulum longo pediculo donatum congestis. Tourn. Cor.* Bladder Eastern Goats-thorn, with purple Flowers gathered into a Head, and set on a long Foot-stalk.

15. *TRAGACANTHA orientalis latifolia, flore purpureo magno. Tourn. Cor.* Eastern Goats-thorn, with a large purple Flower.

16. *TRAGACANTHA orientalis, foliis angustissimis, flore purpurascens. Tourn. Cor.* Eastern Goats-thorn, with very narrow Leaves, and a purplish Flower.

17. *TRAGACANTHA orientalis, foliis oleæ, humillima, floribus in capitulum congestis. Tourn. Cor.* A very low Eastern Goats-thorn, with Olive-leaves, and Flowers gathered into a Head.

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18. *TRAGACANTHA orientalis, foliis oleæ, incanis & tomentosis, caule ab imo ad summum florido. Tourn. Cor.* Eastern Goats-thorn, with hoary and woolly Olive-leaves, and Flowers growing from the Bottom to the Top of the Stalks.

19. *TRAGACANTHA orientalis, foliis incanis, caule & ramulis tomentosis. Tourn. Cor.* Eastern Goats-thorn, with hoary Leaves, and woolly Stalks and Branches.

20. *TRAGACANTHA foliis incanis minoribus, minusque villosis. Boerb. Ind. alt.* Goats-thorn with smaller hoary Leaves, which are less hairy.

Most of the Sorts here mentioned were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent the Seeds of several Kinds to the Royal Garden at *Paris*.

All these Sorts may be propagated by Seeds, which should be sown on a Bed of fresh Earth in *March*; and when the Plants come up, they should be carefully kept clear from Weeds; which, if permitted to grow amongst the Plants, would soon overbear and destroy them, while they are young. If the Season should prove very dry, it will be of great Service to water the Plants now-and-then; and when they are large enough to transplant, they should be carefully taken up, and some of them planted in small Pots filled with fresh Earth, placing them in the Shade until they have taken Root; after which time they may be removed into an open Situation, where they may remain till the latter End of *October*; when they should be placed under a common Frame; where they may be sheltered from severe Frost; but may have free Air in mild Weather, when the Glasses should not be put over them.

The Remainder of the Plants may be planted on a warm dry Border,

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where they must be shaded until they take Root; and if the Season should continue dry, they must be refreshed with Water, otherwise they will be in Danger; because, while they are so young, their Roots will not have established themselves in the Ground, sufficiently to nourish them in great Droughts.

Those Plants which were planted in Pots, may be preserved for a Year or two under Frames in Winter, until they have obtained Strength, when they may be shaken out of the Pots, and planted in a lean dry Soil, and a warm Situation, where they will endure the Cold of our ordinary Winters very well; but as they are sometimes destroyed by hard Winters, it will be proper to keep a Plant of each Kind in Pots, which may be sheltered in Winter to preserve the *Species*.

These Plants may also be propagated by Cuttings, which may be planted during the Summer Months, in the manner directed in the former Volumes, for the Sorts there enumerated.

The Gum Dragon, which is used in the Shops, is produced from several of these Species; tho' it was only from the second Sort, mentioned in the former Volumes, which Dr. *Tournefort* saw it taken.

At present these Plants are rarely preserved, excepting by some Persons who are curious in Botany; yet in large Gardens many of them deserve a Place, where, if they are planted on Hillocks, or the Slopes of dry Banks, they will have a very good Effect, especially as they retain their Leaves thro' the Year.

TRAGIA.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, for the most part divided into three Segments, but these are

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are barren ; for the Embryo's are placed at a Distance on the same Plant, which afterward becomes a tricoccus Fruit, composed of three Cells, each containing one spherical Seed.

The Species are ;

1. *TRAGIA alia scandens, urticæ folio. Plum. Nov. Gen.* Climbing *Tragia*, with a Nettle-leaf.

2. *TRAGIA scandens, longo betonica folio. Plum. Nov. Gen.* Climbing *Tragia*, with a long Betony-leaf.

These Plants were discovered by Father *Plumier* in *America*, who constituted this Genus by this Name, in Honour to *Hieronymus Bock*, a famous Botanist, who was commonly called *Tragus*.

The first Sort grows plentifully in the *Savannahs* in *Jamaica*, and the other warm Parts of *America*; where it twines round whatever Plants or Trees it grows near, and rises seven or eight Feet high, having tough woody Stems. The Leaves are like those of the common Nettle, and the whole Plant is covered with burning Spines, like those of the Nettle; which renders it very unpleasant to handle.

The second Sort was found by the late Dr. *Houfoun* at *Campechy*, from whence he sent the Seeds.

As these are Plants of no Beauty, they are seldom preserved in this Country, except in some Botanic Gardens, for the sake of Variety. They are propagated by Seeds, which must be sown on a Hot-bed early in the Spring, and must afterwards be transplanted into Pots, and plunged into a Hot-bed of Tanners Bark, and treated in the same manner as the *Dioscorea*; with which Management these Plants will thrive very well.

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TRAGOSELINUM, Burnet-faxifrage.

The Characters are ;

It hath an umbellated rose-shaped Flower, composed of five unequal heart-shaped Petals, which are placed circularly, and rest on the Empalement; which afterward becomes a Fruit, composed of two oblong streaked Seeds.

The Species are ;

1. *TRAGOSELINUM majus, umbella candida. Inst. R. H.* Greater Burnet-faxifrage, with a white Umbel.

2. *TRAGOSELINUM majus, umbella rubente. Inst. R. H.* Greater Burnet-faxifrage, with a red Umbel.

3. *TRAGOSELINUM alterum minus. Inst. R. H.* Lesser round-leaved Burnet-faxifrage.

4. *TRAGOSELINUM minus. Inst. R. H.* Small Burnet-faxifrage.

5. *TRAGOSELINUM radice nigra, Germanicum. Jessieu.* German Burnet-faxifrage, with a black Root.

6. *TRAGOSELINUM Austriacum, foliis profundissime incis. Boerb.* Austrian Burnet-faxifrage, with Leaves very deeply cut.

7. *TRAGOSELINUM Creticum maximum villosum, flore albo. Tourn. Cor.* The greatest hairy Burnet-faxifrage of *Crete*, with a white Flower.

8. *TRAGOSELINUM minus saxatile foetidissimum, apii folio. Tourn. Cor.* The least stinking rock Burnet-faxifrage, with a Smallage-leaf.

9. *TRAGOSELINUM orientale laciniatum, umbella purpurascens. Tourn. Cor.* Eastern Burnet-faxifrage, with cut Leaves, and a purplish Umbel.

10. *TRAGOSELINUM orientale laciniatum, umbella alba. Tourn. Cor.* Eastern cut-leaved Burnet-faxifrage, with a white Umbel.

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The first Sort is directed by the College of Physicians to be used in Medicine; but many times the Herb-women in the Markets impose on ignorant Persons two Herbs for this one, viz. Burnet, and Meadow-saxifrage; which are two very different Plants, and of contrary Qualities. This Sort grows wild on the dry shady Banks in *Kent*, and in several other Parts of *England*.

The second Sort is a Variety of the first, from which it only differs in the Colour of the Flowers, which in this Sort are red, and the other are white.

The third Sort grows wild in some Parts of *England*, but is not so common as the fourth, which is the most ordinary Sort in the Fields near *London*. This fourth Sort is sometimes brought to the Markets, and may be used instead of the first: tho' it is much better to have the particular Sort ordered by the College, when it can be procured.

All the other Sorts are Strangers in this Country, but are often preserved by the curious Botanists in their Gardens for Variety, and are all of them as hardy as the common Sorts.

These Plants are propagated by Seeds, which should be sown on a shady Border of fresh Earth at *Michaelmas*; for if they are sown in the Spring, they frequently miscarry, as do many of the umbelliferous Plants. In the Spring following, the Plants will appear, when they should be carefully cleared from Weeds; and as the Plants obtain Strength, they should be thinned where they grow too close; leaving them five or six Inches apart. After this they will require no other Culture, but to keep them clear from Weeds. The second Summer these Plants will flower, and produce

Seeds; but if the Roots are not disturbed, they will continue several Years, and produce Seeds annually. Therefore, where the Plants are designed to remain, the Seeds should be sown in Drills, at about sixteen Inches apart, which will allow room to dig the Ground between the Rows every Winter; whereby the Roots will be greatly encouraged, and the Weeds will be better destroyed.

TRIBULUS, Caltrops.

The Characters are;

It hath a Flower composed of several Leaves, which are placed circularly, and expand in form of a Rose; out of whose Empalement rises the Pointal, which afterward becomes a turbinated Fruit, composed of several Parts, which have Thorns, collected into a Head, and having several Cells, in which are inclosed oblong Seeds.

The Species are;

1. *TRIBULUS terrestris, ciceris folio, fructu aculeato.* C. B. P. Land-caltrop, with a Chick-leaf, and a prickly Fruit.

2. *TRIBULUS terrestris major Curassavicus.* Prod. Par. Bat. Greater Land American Caltrops.

3. *TRIBULUS terrestris Americanus, fructu turbinato, foliis lanuginosis.* Plum. Cat. American Land-caltrops, with a turbinated Fruit, and downy Leaves.

4. *TRIBULUS terrestris Indiae orientalis, foliis viciae subrotundis & villosis.* Inst. R. H. East-India Land-caltrops, with roundish and hairy Vetch-leaves.

The first Sort is a very common Weed in the South of *France*, in *Spain* and *Italy*, where it grows amongst Corn, and on most of the arable Land, and is very troublesome to the Feet of Cattle; for the Fruit, being armed with strong Prickles,

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run into the Feet of the Cattle, which walk over the Land. This is certainly the Plant which is mentioned in *Virgil's Georgics*, under the Name of *Tribulus*; tho' most of his Commentators have applied it to other Plants.

It is called in *England*, *Caltrops*, from the Form of the Fruit, which resembles those Instruments of War that were cast in the Enemies Way to annoy their Horses.

This Plant is preserved in curious Gardens in *England*, for the sake of Variety. It is propagated by Seeds, which should be sown in the Autumn; for those which are kept till Spring, commonly remain in the Ground a whole Year, before the Plants come up. These Seeds should be sown on an open Bed of fresh light Earth, where they are design'd to remain; for, being an annual Plant, it doth not bear transplanting very well, unless it be done when the Plants are very young. In Spring, when the Plants come up, they should be carefully cleared from Weeds; and where they come up too close, some of the Plants should be pulled out, to give room for the remaining Plants to grow. After this they will require no other Culture, but to keep them clear from Weeds. In *June* they will begin to flower, and their Seeds will ripen in *August* and *September*; which if permitted to scatter, the Plants will come up the following Spring, and maintain their Place, if they are not overborn with larger Weeds.

The Branches of this Plant trail on the Ground, and when the Plants are vigorous, will spread to a great Distance from the Root; the Flowers come out on long Foot-stalks from the Division of the Branches, which are succeeded by the Fruit. These, when they are ripe, divide into seve-

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ral Parts; so that, if they are not gathered, they will soon drop off.

The other three Sorts, being Natives of hot Countries, are very tender; wherefore they must be sown on a Hot-bed early in the Spring; and when the Plants are come up, they must be each transplanted into a separate Pot, filled with rich light Earth, and then plunged into a Hot-bed of Tanners Bark, where they must be treated in the same manner as other tender Exotic Plants; being careful to bring them forward as early as possible in the Summer, otherwise they will not perfect their Seeds in this Country.

These are all of them annual Plants, whose Branches trail on the Ground, in the same manner as the common Sort; but when their Roots are pretty much confined in the Pots, they will not grow so vigorous as when planted in larger Pots; but will flower and fruit much earlier in the Season. The second Sort produces large yellow Flowers, which have an agreeable Scent.

TRICHOMANES, Maiden-hair.

There are three or four Varieties of this Plant, which grow in *Europe*; but in *America* there are a great Number of *Species*, which are remarkably different from each other, as also from the *European* Kinds.

These being of the Tribe of Ferns, are seldom preserved in Gardens, but where any Person is curious to collect them. Their Roots should be planted in moist shady Places, especially the *European* Sorts, which commonly grow from between the Joints of old Walls, about Wells, and in other very moist shady Situations. But those Sorts which are brought from hot Countries, must be planted in Pots filled with Rubbish, and strong Earth mixed; and

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in Winter they must be screened from hard Frosts, to which if they are exposed, it will destroy them.

The common Sort in England is generally sold in the Markets for the true Maiden-hair, which is a very different Plant, and not to be found in England, it being a Native of the South of France, and other warm Countries; but is rarely brought to England.

TRIFOLIUM, Trefoil.

To this Article must be added;

1. TRIFOLIUM *purpureum majus, foliis longioribus & angustioribus, floribus saturatioribus.* Raii Syn. The greater purple Trefoil, with longer and narrower Leaves, and deeper-coloured Flowers.

2. TRIFOLIUM *pratense folliculatum.* C. B. P. Bladder Meadow-trefoil.

3. TRIFOLIUM *luteum lupulinum minimum.* Mor. Hist. The least yellow Hop-trefoil.

4. TRIFOLIUM *montanum, spica longissima rubente.* C. B. P. Mountain-trefoil, with a very long reddish Spike.

5. TRIFOLIUM *montanum angustissimum spicatum.* C. B. P. Narrow-leav'd spiked Trefoil.

6. TRIFOLIUM *stellatum.* C. B. P. Rough starry-headed Trefoil.

7. TRIFOLIUM *lagopoides hirsutum angustifolium Hispanicum, flore ruberrimo.* Mor. Hist. Hairy narrow-leaved Hares-foot Spanish Trefoil, with a very red Flower.

8. TRIFOLIUM *Aegyptiacum, floribus albicantibus, foliis oblongis, vulgo Bersain.* Jussieu. Egyptian Trefoil, with whitish Flowers, and oblong Leaves, commonly called Bersain.

9. TRIFOLIUM *Creticum bituminoso simile, plane inodorum, flore purpureo.* Tourn. Cor. Trefoil of Candy resembling the bituminous one, but

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without Smell, with a purple Flower.

10. TRIFOLIUM *Creticum elegantissimum, magno flore.* Tourn. Cor. The most beautiful Trefoil of Candy, with a large Flower.

11. TRIFOLIUM *amplissimo folio subrotundo villoso, flore purpurascens.* Tourn. Cor. Trefoil with a very large roundish hairy Leaf, and a purplish Flower.

12. TRIFOLIUM *orientale altissimum, caule fistuloso, flore albo.* Tourn. Cor. The tallest Eastern Trefoil, with a hollow Stalk, and a white Flower.

13. TRIFOLIUM *orientale majus villosissimum, floribus flavescentibus.* Tourn. Cor. The greater and more hairy Eastern Trefoil, with yellowish Flowers.

14. TRIFOLIUM *clypeatum argenteum.* Alp. Exot. Silvery target-shaped Trefoil.

15. TRIFOLIUM *Apulum annuum, calyce vesicario.* Hort. Piss. Annual Trefoil of Apulia, with a bladder Empalement.

The first Sort here mentioned grows wild in Pastures in many Parts of England, and is cut with the Hay, as is the common Trefoil; from which it differs in having longer and narrower Leaves, and the Flowers being of a deeper red Colour.

The second Sort grows wild in Italy, Spain, and the South of France; from whence the Seeds have been procured by some Persons who are Lovers of Botany, who preserve this Plant in their Gardens for the sake of Variety. This is an annual Plant; wherefore the Seeds should be sown in Autumn, where the Plants are to remain; and in the Spring they must be kept clear from Weeds, which is all the Culture they require. In May the Plants will flower, and their Seeds

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will ripen in *July*. The Branches of this Sort trail on the Ground, and the Flowers are produced on Pedicles, from the Divisions of the small Branches, which are of a bright red Colour, and collected in small globular Heads.

The third Sort is frequently found wild on barren sandy Lands, in several Parts of *England*, but not admitted into Gardens. This Sort has been by some Persons proposed to be cultivated for the Improvement of barren Land; but as it is a very small Plant, and only an Annual, it is not worth the Trial, because the None-such will thrive on any Soil, where this will grow, and is a much stronger Plant; and if the Seeds are permitted to scatter in the manner I have directed, will produce a constant Supply of young Plants.

The fourth Sort grows wild in *Germany*, and several other Parts of *Europe*, and is not a Native of this Country. This Plant produces very long Spikes of reddish Flowers, which make a pretty Appearance, during the Time they continue in Beauty. This Plant is preserved by the Curious in Botany for the sake of Variety, but is seldom cultivated in other Gardens.

The fifth Sort produces very narrow Leaves, and slender Spikes of Flowers, which are of a pale red Colour, and being very small, make but an indifferent Appearance. This is not a Native of this Country.

The sixth Sort grows wild in the South of *France*, in *Italy* and *Sicily*; from whence the Seeds have been obtained by some curious Persons. This Sort, producing starry Heads on the Tops of the Stalks, is preserved for the sake of Variety.

The seventh Sort produces very beautiful red Flowers, which make a fine Appearance, and may be allowed

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a Place in some barren Part of the Garden, where few better Things will grow; or if the Seeds of this Kind were preserved in Quantity sufficient to sow a small Field in Sight of a House, it would afford a very agreeable Prospect when in Flower; and the Grass is as proper Food for Cattle, as the common Trefoil; but this being an annual Plant, is not so proper to cultivate in common, because it requires an annual Culture.

The eighth Sort is cultivated in *Egypt* for feeding of their Cattle, and also in some other Eastern Countries. The Seeds of this Sort have been brought into *Europe* by some Persons who were desirous of having it cultivated here for the same Purposes; but this being an annual Plant also, is not so proper as the Clover, for the Reasons before given; besides, it being a tall slender Plant, is very subject to be beaten down by hard Rains, which will greatly damage it.

The tenth, eleventh, thirteenth, fourteenth and fifteenth Sorts, are all of them annual Plants, which are preserved in some curious Botanic Gardens, for the sake of Variety; but are not cultivated for Use. The Seeds of all these annual Trefoils should be sown in Autumn, early enough for the Plants to get Strength before the Frost comes on; for when the Seeds are sown in the Spring, they frequently fail; and those Plants which arise, seldom grow to any Magnitude, and rarely perfect their Seeds well. Some of these Sorts, which are remarkable for the Colours of their Flowers, are worth propagating in small Patches in Paddocks, where they will afford an agreeable Variety, if they are permitted to flower.

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The ninth and twelfth Sorts are of longer Continuance than the other Sorts ; but these being unfit for Fodder, are only preserved by some curious Persons in their Gardens. These may be propagated by Seeds, in the same manner as the other Sorts, and will live abroad in Winter, if they are planted in a warm Situation, and on a dry Soil. The ninth Sort may also be propagated by Cuttings, which should be placed on a shady Border, where, if they are duly watered, they will soon take Root ; and they may continue in this Border till *Michaelmas*, when they should be planted where they are designed to remain.

TRIOSTEOSPERMUM,
Doct^r Tinkar's Weed, or false
Ipecacuana.

The Characters are ;

It hath a tubulous Flower consisting of one Leaf, divided into five roundish Segments, and inclosed in a five-leaved Empalement, having another Cup resting on the Embryo ; which afterward becomes a roundish fleshy Fruit, inclosing three hard Seeds, which are broad at their upper Part, and narrower at Bottom.

We have but one Species of this Plant ; viz.

TRIOSTEOSPERMUM *latiore folio*,
flore rutilo. Hort. Elib. Broad-leaved Triosteospermum, with a reddish Flower, commonly called Dr. Tinkar's Weed, or false Ipecacuana.

This Plant is a Native of *New England*, *Virginia*, and some other Northern Parts of *America*, where it has been frequently used as an Emetic, and is commonly called *Ipecacuana*. One of the first Persons who brought it into Use, was Dr. Tinkar, from whence many of the Inhabitants call it by the Name

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of Dr. Tinkar's Weed. The Leaves of this Plant greatly resemble those of the true *Ipecacuana*, but the Roots are very different ; and by the most authentic Account we have of the true Sort, it differs in Flower and Fruit from this Plant.

It grows on low marshy Grounds, near *Boston* in *New England*, very plentifully ; where the Roots are taken up every Year, and are continued in Use amongst the Inhabitants of *Boston*.

This Plant is preserved in several curious Gardens in *England*, and is hardy enough to thrive in the open Air : but it should be planted on a moist light Soil ; for if it is on a dry Ground, there must be Care taken to water the Plants constantly in dry Weather, otherwise they will not thrive. It may be propagated by Seeds, which should be sown on a Border of light Earth, where the Morning Sun only comes on it ; but if these Seeds are sown in the Spring, they will remain in the Ground a whole Year, before the Plants will come up : so that during this time the Border must be constantly kept clear from Weeds ; and the following Spring, when the Plants appear, they should be duly watered in dry Weather, which will greatly promote the Growth of the Plants. They must also be constantly kept clear from Weeds, which, if permitted to grow amongst them, will soon overbear the Plants while they are young ; and either quite destroy the Plants, or so much weaken them, that they will not recover it in a long time.

The Plants may remain in this Seed-border, until the *Michaelmas* following, when they should be carefully taken up, and transplanted where they are designed to remain.

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remain. Some of them should be planted in Pots, that they may be sheltered in Winter, lest those which are in the full Ground should be destroyed by severe Frost.

This Plant may be also propagated by parting of the Roots. The best Season for this Work is in the Spring, just before the Plants begin to shoot, which is commonly about the Middle or latter End of *March*; but in doing of this, the Roots must not be parted too small, for that will prevent their flowering strong. This Plant usually grows about two Feet high, and the Flowers come out from the Wings of the Leaves, which being small, make no great Figure in a Garden. However, a few of the Plants may be allowed a Place in some moist wilderness Quarters, where they are not too much over-shaded by Trees; where they will thrive, and add to the Variety.

This Plant perfects its Seeds in this Country every Year; which if sown in Autumn as soon as they are ripe, the Plants will come up the following Spring; by which a whole Year is saved. These seedling Plants will not flower until the third Year; and then they seldom grow so strong as the older Plants.

TRITICUM, Wheat.

To this *Article* must be added;

1. *TRITICUM rufum hexastichon*. C. B. P. Six-rowed Wheat.
2. *TRITICUM semine oblongo*. C. B. P. Long-grained Wheat.
3. *TRITICUM aristis longioribus, spica alba*. C. B. P. White-eared Wheat, with long Awns.

The first of these Sorts of Wheat is not very common in *England* at present. This has six Rows of Grains to each Ear or Spike; tho' the Spikes are not so long as in some of the

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other Sorts: but it is very much esteemed for the Goodness of the Grain in *Savoy*, where it is chiefly cultivated.

The second Sort I have observed in some Parts of *Kent*, where it is by some Farmers cultivated. This produces a longer Grain than most other Sorts, but is not so full; and having more Chaff, is not so much esteemed as some other Sorts.

The third Sort is frequently cultivated in most Parts of *England*, and is esteemed a very hardy Sort of Corn. The Awns of this Sort are as long as those of *Rie*; so that by unskilful Persons it is frequently taken for it, while it is standing on the Field.

Of all the Sorts of Wheat now cultivated in this Country, the Cone Wheat is chiefly preserved, as being a larger Ear, and a fuller Grain, than any other Sort. But the Seeds of these Corns should be annually changed; for if they are sown on the same Farm, where they are sowed for some Years, they will not succeed so well as when the Seed is brought from a distant Country; nay, it is a much better Method to procure the Seeds from *Sicily*, or some other Corn Country, than to sow *English* Seeds. The Husbandmen in the *Low-Countries* annually procure their Seed Wheat from *Sicily*, or the Islands of the *Archipelago*; which they find thrives much better, and produces a finer Grain, and is also not so liable to Smut, as the Corn of their own sowing.

TRIUMPHETTA.

The Characters are;

It hath a Flower consisting of several Petals, which are placed circularly, and expand in form of a Rose: from whose Empalement arises the Pointal,

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Pointal, which afterward becomes a hard spherical burry Fruit, inclosing four angular Seeds.

The Species are :

1. TRIUMFETTA *fructu echinato racemoso*. Plum. Nov. Gen. Triumfetta with a burry branching Fruit.

2. TRIUMFETTA *fructu echinato racemoso, minor*. Millar. Smaller Triumfetta, with a burry branching Fruit.

The first of these Plants is very common in the Island of *Jamaica*, and several other Parts of *America*; but the second Sort is more rare, being found in but few Places. The Seeds of this Kind were sent to *England* by Mr. Robert Millar, who discovered the Plant on the North Side of the Island *Jamaica*.

These being both very tender Plants, must be preserved in the warmest Stoves, otherwise they will not live through the Winter in this Country. They are propagated by Seeds, which must be sown on a Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate Pot filled with light fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark, and shaded from the Sun until they have taken new Root; after which time they must be treated in the same manner as hath been directed for other tender Exotic Plants. During the Summer the Plants may remain in this Hot-bed, but in Autumn they must be removed into the Stove, and plunged into the Bark-bed, observing to water them frequently; tho' in very cold Weather it must not be given to them in large Quantities. If the Plants live through the Winter, they will flower the following *June*, and ripen their Seeds in *September*; but the Plants may be continued two or

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three Years, provided they are carefully managed.

The Flowers of these Plants are small, and of a yellow Colour, somewhat like those of Agrimony; for which the Plant has been by some ranged under that Genus. These Flowers are produced in Branches at the Extremity of the Shoots; but as they are not very beautiful, they are seldom preserved but in such Gardens, where Variety is chiefly intended.

The first of these Sorts rises to the Height of six or seven Feet, and the Stem becomes woody. Toward the Top it divides into several Branches, each of which produces a Spike or Bunch of Flowers. The Leaves of this Sort are pretty large, and shaped like those of the larger *Malvinda*.

The second Sort seldom rises more than three Feet high, and has smaller Leaves than the first. The Stem of this Sort is woody, but it doth not branch so much as the former, and is in every respect a much less Plant than that.

TURNERA.

The Characters are ;

It hath a funnel-shaped Flower, consisting of five Leaves, which are fastened to the Calyx, which is monopetalous, and divided into five Parts at the Top: under the Flower-cup there are two Leaves, which join at the Bottom, and surround the Cup: from the Centre of the Flower-cup arises the Pointal, which is divided into three Parts to the Bottom, and surrounded by five Stamina. This Pointal afterward becomes an almost spherical Fruit, which is divided into three Parts, and filled with roundish Seeds, which are fastened to the Placenta by slender Threads.

The Species are;

1. TURNERA *frutescens ulmifolia*. Plum. Nov. Gen. 15. Shrubby Turnera, with an Elm-leaf.

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2. *TURNERA frutescens, folio longiore & mucronato.* Shrubby Turnera, with a longer pointed Leaf.

These Plants are both of them Natives of the warm Parts of *America*. The first *Species* was found by Father *Plumier* in *Martinico*, who gave it the Name of Turnera, from Dr. *Turner*, a famous *English* Physician, who lived in Queen *Elizabeth's* Reign, and wrote a Herbal, in which he has chiefly figured and described the useful Plants.

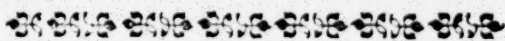
The other *Species* was discovered by Sir *Hans Sloane*, Baronet, who has figured it in his *Natural History of Jamaica*, under the following Name; *Cistus urticæ folio, flore luteo, vasculis trigonis*. But both these Sorts were observed by my late Friend Dr. *William Houstoun*, in several Parts of *America*. These grow to the Height of five or six Feet, and may be trained into regular Shrubs: they both produce yellow Flowers, which come out of the Foot-stalks of the Leaves, and are continued for at least nine Months, which renders them worthy of a Place in the Stove.

They may easily be propagated, by sowing their Seeds on a Hot-bed early in the Spring; and when the Plants are come up two Inches high, they must be transplanted into small Pots, and plunged into a Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which time they must be treated as hath been directed for the Guava's; to which the Reader is desired to turn, to avoid Repetition. The Seeds of these Plants will often fall into the Pots which are placed near them in the Stove; which will grow, and soon furnish Plants enough, after a Person is once possessed of them. These Plants are too tender to live in the open Air in *England*; but must be placed in the Bark-bed

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in the Stove; where, during the Winter Season, they must be kept warm, and frequently watered; tho' in the Summer Season they must have a great Share of Air, otherwise they will draw up tender, and not produce many Flowers.

When the Plants are grown pretty large, they may be treated more hardily, by placing them in the dry Stove; where, if they are kept in a moderate Degree of Heat, they will thrive and flower very well. Those who would save the Seeds of these Plants, must watch them carefully, because, when they are ripe, they soon scatter, if they are not gathered.



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VALERIANA, Valerian.

To this Article must be added;

1. *VALERIANA Alpina, foliis integris, radice repente, inodora.* Raii Hist. Alpine Valerian, with undivided Leaves, and a creeping Root, without Smell.

2. *VALERIANA Alpina prima.* C. B. P. The first Alpine Valerian of Caspar Baubin.

3. *VALERIANA Alpina altera.* C. B. P. Another Alpine Valerian of Caspar Baubin.

4. *VALERIANA Alpina, scrophulariæ folio.* C. B. P. Alpine Valerian, with a Figwort-leaf.

5. *VALERIANA montana, subrotundo folio.* C. B. P. Mountain Valerian, with a roundish Leaf.

6. *VALERIANA Alpina, nardo Celticæ similis.* C. B. P. Alpine Valerian, resembling the Celtic Spike-nard.

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7. *VALERIANA Cretica, filipendulæ radice.* *Inst. R. H.* Candy Valerian, with a Dropwort-root.

8. *VALERIANA Celtica.* *Inst. R. H.* Celtic Valerian, or Spikenard.

9. *VALERIANA marina angustifolia, sive minor alba.* *Mor. Hist.* Narrow-leav'd or smaller white Sea Valerian.

10. *VALERIANA Alpina minor.* *C. B. P.* Smaller Alpine Valerian.

11. *VALERIANA tuberosa Imperati.* *Tourn. Cor.* Tuberoso-rooted Valerian of *Imperatus*.

12. *VALERIANA orientalis angustifolia, floribus & radice Valerianæ hortensis.* *Tourn. Cor.* Narrow-leav'd Eastern Valerian, with the Flowers and Root of the Garden Valerian.

13. *VALERIANA orientalis, alliariæ folio, flore albo.* *Tourn. Cor.* Eastern Valerian, with a Sauce-alone-leaf, and a white Flower.

14. *VALERIANA orientalis, f. symbii Matthioli folio.* *Tourn. Cor.* Eastern Valerian, with a Water-cress-leaf.

15. *VALERIANA orientalis minima, flore leucophæa.* *Tourn. Cor.* The least Eastern Valerian, with a whitish Flower.

16. *VALERIANA maxima Pyrenaica, cocaliæ folio.* *D. Fagon. Inst. R. H.* The greatest Pyrenean Valerian, with a strange Coltsfoot-leaf.

17. *VALERIANA foliis calcitrapæ.* *C. B. P.* Valerian with Leaves like those of the Star-thistle.

18. *VALERIANA Lusitanica annua latifolia laciniata.* *Inst. R. H.* Broad jagged-leav'd annual Valerian of Portugal.

19. *VALERIANA humilis Americana, folio rotundo subtus argenteo.* *Plum.* Dwarf American Valerian, with a round Leaf white underneath.

The first, second, third, fourth,

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sixth and tenth Sorts, grow on the *Alps*, from whence they have been procured by some curious Botanists, and are preserved in their Gardens for Variety. These are abiding Plants, which may be propagated by parting of their Roots. The best Time to transplant these Plants, and part their Roots, is soon after *Michaelmas*, when their Leaves decay, that they may have good Rooting in the Ground, before the dry Weather comes on in the Spring; otherwise they will not flower strong the following Summer. All these Sorts should be planted on a strong loamy Soil, and in a shady Situation; where they will thrive much better than on a light Earth, and in an open Situation, in which they will not live, unless they are duly watered in dry Weather.

The fifth Sort has been found on the Mountains in the North of *England*, but is very common in several Parts of *Germany*, as also on the *Alps* and *Pyrenean* Mountains.

The seventh Sort grows in several Islands of the *Archipelago*, and also in *Liguria*: it is chiefly found on Hills and Mountains which are moist. The Roots of this Sort are as large as small Walnuts, which hang from Dugs after the manner of Dropwort. These Roots, when bruised, emit a Smell very like Spikenard.

The eighth Sort is the true Spikenard, which is used in Medicine. This grows in great Plenty amongst the Moss, on the Tops of the *Alps*, where the Snow lies a great Part of the Year. These Roots are taken up for Use in *August*, when the Leaves decay, at which time they have the strongest Scent.

The eleventh Sort has also knobbed Roots, about as large as Walnuts, which have a Scent somewhat like Spikenard. This Sort has Leaves like

like those of the small Valerian, and the Flowers resemble those of the great Garden Sort, which grow about two Feet high.

All these Sorts are very hardy Plants in respect to Cold; but they will not live in a dry light Soil, and an open Situation: therefore whoever is inclinable to cultivate them, should plant them on a moist loamy Soil, on a North Border, where they may be intirely screened from the Sun; and in very dry Weather they must be constantly watered, otherwise they will not thrive. These Sorts with knobby Roots, should not be often transplanted: if they are removed every third Year, it will be often enough; but then the Ground between the Roots should be every Spring gently dug to loosen it, being careful not to cut or bruise the Roots. These Plants usually flower in *June*, but they seldom produce good Seeds.

The ninth Sort is not very common in the *English* Gardens at present. This only differs from the Garden Valerian with white Flowers, in having narrow Leaves; wherefore it may be propagated in the same manner as hath been directed in the former Volumes of the *Gardeners Dictionary*, for the red and white Garden Valerian. It will also propagate itself by Seeds, if they are permitted to scatter in a shady Situation, where the Plants will come up without any Care, and may be transplanted into large Borders, where they will make an agreeable Variety, and continue a long time in Flower.

The twelfth, thirteenth, fourteenth and fifteenth Sorts, were discovered by Dr. *Tournefort* in the *Levant*, from whence their Seeds were sent to *Paris*. These are also hardy Plants, which will live in the open Air, and should have a shady Situation, and be planted on a moist light Soil.

The sixteenth Sort is a Native of the *Pyrenean* Mountains; but is preserved in the Gardens of the Curious in Botany, for the sake of Variety. This is a biennial Plant, which must be permitted to scatter its Seeds for a Supply of young Plants. This Plant should have a moist Soil, and a shady Situation; where it will thrive, and produce good Seeds; but if the Seeds are not sown in Autumn, they seldom grow; so that when they scatter themselves, they generally grow better than when they are sown by Hand. This Sort rises three Feet high, and has very broad Leaves; but the Flowers, being small, make no great Appearance; and when their Seeds are ripe, the Plants soon after perish.

The seventeenth and eighteenth Sorts are annual Plants, which, if once introduced into a Garden, will scatter their Seeds, and maintain their Situation. The Seeds of these Kinds will disperse themselves to a great Distance by the Help of the Down which adheres to them; and often grow on Walls and Buildings, where they are stunted and small; but will flower and seed, whereby they will become errant Weeds, notwithstanding they decay as soon as their Seeds are ripe. These two Sorts will grow on any Soil, or in any Situation; but they will thrive best on a moist Soil, and in a shady Situation. Their Seeds must be sown in Autumn, otherwise they seldom succeed.

The nineteenth Sort, being a Native of the warm Parts of *America*, is a tender Plant, and very rare in *Europe*; for the Seeds will not grow when kept long out of the Ground; but should be sown in Tubs of Earth abroad; and when the Plants are come up, they may be brought over to *England*. This Sort must be preserved in a Stove; for it is too tender

der to live in the open Air in this Country. In Summer this Plant should have a large Share of free Air, by opening the Glasses of the Stove in warm Weather; and must be frequently watered: for it grows naturally on low marshy Places, and requires a large Share of Water in hot Weather; but in Winter it must be kept warm, and have but little Water in very cold Weather.

VALERIANELLA, Corn-fallet, or Lambs-lettice.

To this *Article* must be added;

1. VALERIANELLA *semine umbilicato nudo rotundo*. Mor. Umb. Corn-fallet with a round naked umbilicated Seed.

2. VALERIANELLA *semine umbilicato nudo oblongo*. Mor. Umb. Corn-fallet with an oblong naked umbilicated Seed.

3. VALERIANELLA *semine umbilicato hirsuto majore*. Mor. Umb. Corn-fallet with a larger hairy umbilicated Seed.

4. VALERIANELLA *semine umbilicato hirsuto minore*. Mor. Umb. Corn-fallet with a smaller hairy umbilicated Seed.

5. VALERIANELLA *Cretica, fructu vesicario*. Tourn. Cor. Candy Corn-fallet, with a bladdered Fruit.

6. VALERIANELLA *cornucopioides echinata*. Inst. R. H. Prickly Corn-fallet, resembling a Helmet.

7. VALERIANELLA *orientalis, fructu parvo corniculato*. Tourn. Cor. Eastern Corn-fallet, with a small horned Fruit.

The four first Sorts are Varieties of the common Corn-fallet, which are preserved in some curious Botanic Gardens for the sake of Variety. These are all very hardy Plants, which if permitted to scatter their Seeds, will come up in almost any Soil or Situation, and require no other Care but to keep them clear

from Weeds. When they are not permitted to scatter their Seeds, they should be sown in Autumn; otherwise the Seeds will often lie in the Ground till the following Autumn before they grow.

The fifth and seventh Sorts were discovered by Dr. Tournefort in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*; which have since been communicated to many curious Persons in *England*. These are very hardy Plants, which may be propagated by Seeds, in the same manner as the other Sorts; and if they are permitted to scatter their Seeds, will come up, and require no other Care, but to keep them clear from Weeds.

The sixth Sort produces Tufts of red Flowers, which are shaped like a Helmet, and make a pretty Appearance when blown. This is also a hardy Plant, and may be propagated in the same manner as the other Sorts.

VANILLA.

The *Characters* are;

It hath an anomalous Flower, consisting of six Leaves, five of which are placed in a circular Order; and the other, which occupies the Middle, is concave. The Empalement afterward becomes a horned soft fleshy Fruit, filled with very small Seeds.

The *Species* are;

1. VANILLA *flore viridi & albo, fructu nigrescente*. Plum. Nov. Gen. Vanilla with a green and white Flower, and a blackish Fruit.

2. VANILLA *flore violaceo, fructu breviori rubro*. Plum. Nov. Gen. Vanilla with a violet-colour'd Flower, and a short red Fruit.

3. VANILLA *flore albo, fructu breviori corallino*. Plum. Nov. Gen. Vanilla with a white Flower, and a short coralline Fruit.

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The Fruit of these Plants is called by the *Spaniards* in *America*, *Vanilla*, or *Vinello*, and is much used by them to scent their Chocolate. It is the first *Species* here mentioned, which is chiefly esteemed. These grow plentifully in the *Bay of Campechy*, in the *West-Indies*; where they are usually sold for about Three-pence each Fruit, *English* Money.

The other two Sorts are found in several Parts of *America*, where they always grow in low marshy Places under Trees, and fasten themselves to the Trunks of the Trees, and are by that means supported. The Fruit of these Kinds are rarely used, being of little Value; but the other Sort is often brought into *Europe*, and sold by the Druggists.

The Method of gathering and preparing of this Fruit for Use is little known to the *Europeans*, being manufactured by the *Indians*, who sell it very cheap to the *Spaniards*. However, I shall subjoin an Account which I received from an intelligent Person, who had resided in the *Spanish West-Indies* for some time; but shall first describe the Plant, with its manner of Growth, and how it may be propagated in the warm Parts of *America*.

The Plant which produces the Fruit called *Vanilla* or *Banilla* by the *Spaniards*, hath a trailing Stem, somewhat like common Ivy, which fastens itself to whatever Tree grows near it, by small Fibres, which are produced at every Joint, which fasten to the Bark of the Tree, and by which the Plants are often nourished, when they are cut or broken off from the Root a considerable Height from the Ground, in like manner as the Ivy is often seen in *England*. The Leaves are as large as those of the common Laurel, but are not

quite so thick; these are produced alternately at every Joint, (which are six or seven Inches asunder) and are of a lively green Colour on the upper Side, but of a paler Green underneath. The Stems of these Plants shoot into many Branches, which fasten themselves also to the Branches of the Trees; by which means they rise to the Height of eighteen or twenty Feet, and spread quite over some of the smaller Trees, to which they are joined. The Flowers are of a greenish yellow Colour, mixed with white; which, when fallen, are succeeded by the Fruit, which are six or seven Inches long.

This Sort, which is manufactured, grows not only in the *Bay of Campechy*, but also at *Carthagena*, at the *Caraccas*, *Honduras*, *Darien* and *Cayan*; at all which Places, the Fruit are gathered and preserved: but is rarely found in any of the *English* Settlements in *America* at present, tho' it might be easily carried thither and propagated; for the Shoots of these Plants, being full of Juice, may be easily transported; because they will continue fresh out of the Ground for several Months.

I had some Branches of this Plant, which were gathered by Mr. Robert Millar at *Campechy*, and sent over between Papers by way of Sample: these had been at least four Months gathered, when I received them; and upon opening of the Papers, I found the Leaves rotten, with the Moisture contained in them, and the Paper was also perished with it; but the Stems appeared fresh: upon which I planted some of them in small Pots, and plunged them into a Hot-bed of Tanners Bark; where they soon put out Leaves, and sent forth Roots from their Joints. But as these Plants naturally fasten themselves

selves to the Stems of the Trees, it is with great Difficulty they are kept alive, when they have not this Assistance : therefore whoever would preserve any of these Plants in *Europe*, should plant them in Tubs of Earth, near the Stem of some vigorous *American* Tree, which requires a Stove, and can bear a great deal of Water ; because the *Vanilla's* must be plentifully watered in the Summer Season, otherwise they will not thrive. They require also to be shaded from the Sun by Trees ; so that if these are planted at the Foot of the *Hernandia*, or *Jack-in-a-Box*, whose Leaves are very large, and afford a good Shade, they will succeed better than when they are exposed in single Pots alone ; and as these Plants require the same Degree of Heat in Winter, they will agree well together.

When the Plants are designed for Propagation in the warm Parts of *America*, there is nothing more required than to make Cuttings of about three or four Joints in Length, which should be planted close to the Stems of Trees, in low marshy Places ; and to keep down other troublesome Plants, which if permitted to grow about the Cuttings before they are well rooted, would overbear and destroy them : but after they are established, and have fastened their Shoots to the Stems of the Trees, they are not in much Danger of being injured by neighbouring Plants ; tho' when the Ground is kept clear from Weeds, the Plants will be much better nourished.

These Plants do not produce Flowers until they are grown strong, so that the Inhabitants affirm, that it is six or seven Years from the Planting to the Time of their bearing Fruit. But when they begin to flower and fruit, they continue for

several Years bearing, and this without any Culture ; and as it is a Commodity which bears a good Price, it is well worth Cultivating in several of the *English* Settlements, especially as it will grow in moist woody Places, where the Land is not cleared from Timber.

The Method used to prepare the Fruit ; is, when it turns of a yellow Colour, and begins to open, to gather it and lay it in small Heaps to ferment two or three Days, in the same manner as is practised for the *Cocoa* or *Chocolate* Pods. Then they spread them in the Sun to dry, and when they are about half dried, they flat them with their Hands, and afterwards rub them over with the Oil of *Palma Christi*, or of the *Cocoa* : then they expose them to the Sun again to dry, and afterward they rub them over with Oil a second time ; then they put them in small Bundles, covering them with the Leaves of the *Indian* Reed to preserve them.

These Plants produce but one Crop of Fruit in a Year, which is commonly ripe in *May*, fit for gathering ; for they do not let them remain on the Plants to be perfectly mature, because then they are not fit for Use ; but when they are about half changed yellow, they esteem them better for keeping, than when they are changed to a dark-brown Colour ; at which time the Fruit splits, and shews a great Quantity of small Seeds, which are inclosed within it. While the Fruit is green, it affords no remarkable Scent ; but as it ripens, it emits a most grateful aromatic Odour. When the Fruit begins to open, the Birds attack it, and devour all the Seeds very greedily, but do not eat any other Part of the Fruit.

The Fruit which are brought to *Europe*, are of a dark brown Colour,

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lour, about six Inches long, and scarce an Inch broad; are wrinkled on the Out-side, and full of a vast Number of black Seeds like Grains of Sand, of a pleasant Smell, like Balsam of *Peru*.

This Fruit is only used in *England*, as an Ingredient in Chocolate, to which it gives a pleasant Flavour. But the *Spanish* Physicians in *America* use it in Medicine, and esteem it grateful to the Stomach and Brain, for expelling of Wind, to provoke Urine, to resist Poison, and cure the Bite of venomous Animals.

As this Plant is so easily propagated by Cuttings, it is very strange, that the Inhabitants of *America* should neglect to cultivate it, especially as it is an Ingredient in Chocolate, which is so much drank all over *America*; but as the *English* have in a manner quite neglected the Culture of the *Cocoa*, it is no wonder they should neglect this; since the former was cultivated in great Plenty by the *Spaniards* in *Jamaica*, while that Island remained in their Possession; so that the *English* had an Example before them, if they would have followed it: whereas the *Vanilla* was not found growing there; and therefore it is not to be supposed, that the Persons who were so indolent, as to quit the Culture of many valuable Plants then growing on the Spot, should be at the Trouble of introducing any new ones.

VERBASCUM, Mullein.

To this *Article* must be added;

1. VERBASCUM *fœmina*, flore luteo magno. C. B. P. Female Mullein, with a large yellow Flower.

2. VERBASCUM *angustifolium ramosum*, flore aureo, folio crassiore. J. B. Branching narrow-leaved Mullein, with a golden Flower, and a thicker Leaf.

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3. VERBASCUM *foliis viridibus, annuum, floribus luteis*. H. L. Annual Mullein, with green Leaves, and yellow Flowers.

4. VERBASCUM *nigrum Dioscoridis*. Lob. Icon. Black Mullein of *Dioscorides*.

5. VERBASCUM *Alpinum perenne nigrum, flore albo, staminibus purpureis*. H. R. Par. Black perennial Mullein of the *Alps*, with a white Flower, and purple Chives.

6. VERBASCUM *ramosum, floribus albis parvis*. Mor. H. R. Blæs. Branching Mullein, with small white Flowers.

7. VERBASCUM *Creticum spinosum frutescens*. Tourn. Cor. Shrubby and thorny Mullein of *Crete*.

8. VERBASCUM *Græcum fruticosum, folio sinuato candidissimo*. Tourn. Cor. Shrubby Mullein of *Greece*, with a very white indented Leaf.

9. VERBASCUM *orientale maximum candidissimum, ramis candelabrum æmulantibus*. Tourn. Cor. The greatest and whitest Eastern Mullein, with Branches resembling a Candlestick.

10. VERBASCUM *orientale, conyzæ folio, flore micante, è ferrugineo ad aureum colorem vergente*. Tourn. Cor. Eastern Mullein, with a Flea-bane-leaf, and a shining Flower, from an iron inclining to a gold Colour.

11. VERBASCUM *orientale, betonica folio, flore magno*. Tourn. Cor. Eastern Mullein, with a Betony-leaf, and a larger Flower.

12. VERBASCUM *orientale, angusto oblongo folio*. Tourn. Cor. Eastern Mullein, with an oblong and narrow Leaf.

13. VERBASCUM *orientale, foliis subrotundis candidissimis*. Tourn. Cor. Eastern Mullein, with roundish white Leaves.

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The six first-mentioned Sorts are very hardy Plants, which grow wild in several Parts of *Europe*, but are preserved in the Gardens of curious Botanists for the sake of Variety.

The seventh Sort grows in the Island of *Crete* in the *Archipelago*, where it rises to the Height of three Feet, having a woody Stem; and divides into many Branches, which are armed with Thorns towards their Extremities. The Leaves are oblong, narrow, and sinuated like those of the wild Rocket, but are very white and woolly. The Flowers are produced near the Extremity of the Branches, which are of a yellow Colour, resembling those of the Wall-flower; from whence some Authors have named it *Leucoium spinosum*, i.e. prickly Gilliflower.

The eighth Sort is very like the seventh, which is described in the former Volumes of the *Gardeners Dictionary*; but Dr. *Tournefort*, who found this in the *Archipelago*, thinks it to be different, because it has not degenerated in the Royal Garden at *Paris*, as the other Sort commonly will do, when it has been cultivated two or three Years in a Garden. This Sort seldom continues longer than two or three Years before the Roots perish.

The ninth, tenth, eleventh, twelfth and thirteenth Sorts, were discovered by Dr. *Tournefort* in the *Levant*; from whence he sent their Seeds to the Royal Garden at *Paris*. All these Sorts are hardy enough to thrive in the open Air in *England*, provided they are sown on a dry undunged Soil; for when they grow on a moist Soil, their Roots are subject to rot in the Winter; and if the Ground is enriched with Dung, it causes the Plants to grow so rank in Autumn, that they are in Danger of being destroyed by hard Frost.

All these Plants are propagated by Seeds, which should be sown on a Bed of light fresh Earth, in an open Situation. The best Time to sow these Seeds, is in Autumn, soon after they are ripe; when they will more certainly grow, than if they are sown in the Spring: and when they are sown early in the Autumn, the Plants will flower the following Summer, by which there will be a Year saved. These Seeds should be sown in Drills, which should be made about eighteen Inches asunder, because it will be proper to let some of the Plants remain to flower in the Seed-bed, where they will grow much stronger than those which are transplanted: when the Plants come up, they should be kept clean from Weeds; and about *Michaelmas* some of the Plants should be carefully drawn out, where they grow too close together, which may be transplanted out into a Nursery-bed to get Strength; and afterward they may be removed and planted about in Wilderness Quarters; where (if they are not too much over-shaded by Trees) they will thrive and flower very well, and make an agreeable Variety. Those Plants which are left in the Seed-beds to flower, should be singled out to a Foot or more Distance in the Rows; otherwise they will not have room to spread.

There are very few of the Mulleins which are planted in Gardens for Ornament, because several of the Sorts grow wild in *England*; for which Reason many Plants are rejected, and meaner Sorts are cultivated, because they are more rare: but in large Gardens, where there are many Wilderness Quarters, these Plants are very proper Furniture, because they require very little Care to cultivate them, and they continue
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a long time in Flower; and tho' they do not make so fine an Appearance as some other Plants, yet for the agreeable Scent of their Flowers, which resemble the Violets, they deserve a Place much better than many other Plants which are cultivated in Gardens.

The seventh Sort being tenderer than any of the others, some of the Plants should be planted in Pots, filled with fresh light Earth, that they may be sheltered under a Hot-bed Frame in Winter, where they should have as much free Air as possible in mild Weather, and covered only in very hard Frost. The other Plants may be planted on a dry Soil in a warm Situation, where they will endure the Cold of our ordinary Winters very well.

VERBENA, Vervain.

To this Article must be added;

1. VERBENA *tenuifolia*. C. B. P. Narrow-leaved Vervain,

2. VERBENA *urticæ folio longiore serrato*. Houst. American Vervain, with a longer sawed Nettle-leaf.

3. VERBENA *Bonariensis altissima, lavendulæ Canariensis spica multiplici*. Hort. Elth. The tallest Vervain of *Buenos Ayres*, with many Spikes resembling the *Canary Lavender*.

4. VERBENA *Carolinensis, mellissæ folio aspero*. Hort. Elth. *Carolina Vervain*, with a rough Balm-leaf.

5. VERBENA *Mexicana, trachelii folio, fructu aparines*. Hort. Elth. *Mexican Vervain*, with a Throatwort-leaf, and a Fruit like Goose-grafs.

The first Sort here mentioned is equally as hardy as the common Vervain, from which it only differs in having narrower Leaves; but is never admitted in Gardens, unless for the sake of Variety.

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The second Sort was discovered by the late Dr. *William Houstoun* in *Jamaica*, from whence he sent the Seeds into *England*. This is a biennial Plant, which commonly perishes soon after it has perfected its Seeds.

The third Sort was brought from *Buenos Ayres*. This Plant grows to the Height of five or six Feet or more, and produces its Flowers at the Extremity of the Branches in many slender Spikes, which are placed close together, somewhat like the *Canary Lavender*. These Flowers are small, and of a blue Colour.

The fourth Sort is a Native of *Carolina*. This is a much humbler Plant, for it rarely rises above two Feet and a half high. This produces its Flowers in Spikes like the common Sort.

The fifth Sort was brought from *Mexico*. This commonly grows about three Feet high or more; and generally produces three Spikes from a Joint at the Extremity of the Branches. The Flowers are Male and Female on the same Spike. The Female Flowers produce their Seeds covered with the Empalement, which swells into a roundish Form, so as to appear somewhat like the Seeds of Goose-grafs or Clivers.

The second, third and fifth Sorts, are tender Plants, which may be propagated by Seeds, and should be sown on a Hot-bed early in the Spring; but when the Plants are come up, they must have a good Share of free Air admitted to them in warm Weather; otherwise they will draw up too weak: they must also be often refreshed with Water. When the Plants have obtained some Strength, they should be transplanted on another moderate Hot-bed, observing to shade them until they have taken new Root; after which

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time they must have Air and Moisture in warm Weather in great Plenty, which will strengthen the Plants. About the Beginning of *June*, the Plants should be carefully taken up with Balls of Earth to their Roots, planted into Pots filled with fresh light Earth, and then plunged into a very moderate Hot-bed, where they should be screened from the Sun until they have taken new Root; and then they should be inured to the open Air by degrees; for in *July* they may be removed out of the Hot-bed, and placed in a warm sheltered Situation, where they may remain till the Middle or latter End of *September*, when they must be removed into the Stove; where, if they have a moderate Degree of Warmth in Winter, and are duly supplied with Water, the Plants may be preserved, and the following Summer they will produce Flowers; and if the Season proves favourable, they will perfect their Seeds in Autumn.

The third Sort, being much more hardy than those last-mentioned, may be sown on a Bed of light Earth in a warm Situation, about the Middle of *March*; and when the Plants are come up, they must be constantly kept clean from Weeds, until they are strong enough to transplant; when they must be carefully taken up, and some of them planted into small Pots filled with fresh light Earth, and placed in a shady Situation, until they have taken new Root: then they may be placed in an open Situation with other hardy Exotic Plants, where they may remain during the Summer Season; but in Winter they must be sheltered from severe Frost. The other Plants may be planted in a warm Border, where they will endure the Cold of our ordinary Winters without

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Covering, but in hard Winters these are sometimes destroyed; for which Reason, it will be proper to have some of the Plants in Pots, in order to preserve the Kind. This Sort flowers, and produces good Seeds, in this Country; but the Roots seldom continue above two or three Years.

VERONICA, Speedwell, or Fluellin.

To this *Article* must be added;

1. VERONICA *mas repens* Pyrenaica, folio longiori glabro. Schol. Bot. Male creeping Pyrenean Speedwell, with a longer smooth Leaf.

2. VERONICA *mas erecta*. C. B. P. Male upright Speedwell.

3. VERONICA *spicata*, flore purpureo. Mor. Hort. Reg. Blaf. Spiked Speedwell, with a purple Flower.

4. VERONICA *spicata minor*. C. B. P. Smaller spiked Speedwell.

5. VERONICA *Alpina frutescens*. C. B. P. Shrubby Speedwell of the Alps.

6. VERONICA *Alpina fruticans, serpylli minoris folio circinato*. Pluk. Phyt. Shrubby Speedwell of the Alps, with a round lesser Mother-of-thyme-leaf.

7. VERONICA *frutescens durior, oblongo chamædryos folio*, Patavina. Bocc. Mus. Harder shrubby Speedwell of Padua, with an oblong Germander-leaf.

8. VERONICA *Austriaca, foliis tenuissime laciniatis*. Inst. R. H. Austrian Speedwell, with Leaves finely jagged.

9. VERONICA *maxima*. Lugd. The greatest Speedwell, or false Germander.

10. VERONICA *maxima Pyrenaica, non ramosa*. Inst. R. H. The greatest unbranched Speedwell of the Pyrenean Mountains.

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11. *VERONICA major frutescens altera*. Mor. Hist. Another greater shrubby Speedwell, or false Germander.

12. *VERONICA supina, facie teucrii pratensis*. Lob. Icon. Low Speedwell, with the Face of Meadow-germander.

13. *VERONICA longifolia Virginiana altissima, foliis ternis profunde serratis caulem amplexantibus, spica multiplici cærulea*. Royen. The tallest long-leav'd Virginian Speedwell, with deeply-sawed Leaves embracing the Stalks, and many Spikes of blue Flowers.

14. *VERONICA minor angustifolia ramosior & procumbens*. Mor. Hist. Oxon. Small narrow-leaved branching and trailing Speedwell.

15. *VERONICA aquatica major, folio subrotundo*. Mor. Hist. Greater Water Speedwell, with a roundish Leaf, commonly called Brook-lime.

16. *VERONICA aquatica, angustiore folio*. Inst. R. H. Narrow-leaved Water Speedwell, or Brook-lime.

17. *VERONICA aquatica minor, folio subrotundo*. Inst. R. H. Lesser Water Speedwell, with a roundish Leaf.

18. *VERONICA aquatica major, folio oblongo*. Mor. Hist. Greater Water Speedwell; or Brooklime, with an oblong Leaf.

19. *VERONICA aquatica minor, folio oblongo*. Mor. Hist. Small Water Speedwell, with an oblong Leaf.

20. *VERONICA Constantinopolitana incana, chamædryos folio*. Tourn. Cor. Hoary Speedwell of Constantinople, with a Germander-leaf.

21. *VERONICA orientalis, foliis hederæ terrestres, flore magno*. Tourn. Cor. Eastern Speedwell, with Ground-ivy-leaves, and a large Flower.

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22. *VERONICA orientalis erecta, gentianellæ foliis*. Tourn. Cor. Upright Eastern Speedwell, with small Gentian-leaves.

23. *VERONICA orientalis elatior, gentianellæ foliis, flore majore albido*. Tourn. Taller Eastern Speedwell, with small Gentian-leaves, and a larger white Flower.

24. *VERONICA orientalis minima, foliis laciniatis*. Tourn. Cor. The least Eastern Speedwell, with jagged Leaves.

25. *VERONICA orientalis, telephii folio*. Tourn. Cor. Eastern Speedwell, with an Orpine-leaf.

26. *VERONICA major frutescens altera, foliis constanter & eleganter variegatis*. Boerb. Ind. alt. The other great shrubby Speedwell, with Leaves constantly and beautifully variegated.

27. *VERONICA Americana erecta, foliis gramineis, floribus ex foliorum alis*. Houst. Upright American Speedwell, with Grass-leaves, and Flowers coming out of the Wings of the Leaves.

28. *VERONICA fruticosa erecta dulcis, hexangulati caule, flore dilute cæruleo*. Sloan. Cat. Wild Liquorice, or Sweet-weed.

29. *VERONICA caule hexangulari, foliis saturatæ ternis serratis*. Sloan. Cat. Speedwell with an hexangular Stalk, and sawed Savory-leaves growing by Threes.

30. *VERONICA quæ scordium maritimum, fruticosum procumbens, flore cæruleo*. Sloan. Cat. Shrubby trailing maritime Speedwell, or Scordium, with a blue Flower.

The fourteen Sorts which are first mentioned, are very hardy abiding Plants; and may be propagated either by Seeds, or parting of their Roots. If propagated by Seeds, they should be sown on an open Bed of fresh Earth in March, and in April the

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Plants will come up, when they must be kept clear from Weeds; and if the Season should prove very dry, and they are watered two or three times a Week, it will cause them to make a great Progress. Where the Plants come up too close together, some of them should be drawn up, and transplanted into Nursery-beds, where they should be shaded and watered until they have taken new Root; and then they will require no farther Care, but to keep them clean from Weeds until *Michaelmas*, when they will be fit to transplant out where they are designed to remain for good. All these Sorts are very proper to plant on the Side of sloping Banks, or in wilderness Quarters under Trees, where they will flower a long time, and make an agreeable Variety.

The thirteenth Sort is a Plant of larger Growth than the others: this commonly rises four or five Feet high, if it is planted on a good Soil; and produces fine Spikes of blue Flowers, which in a cool Season, or when they grow on a moist Soil, and in a shady Situation, will continue in Beauty a long time; for which it may deserve a Place in every good Garden.

These Plants may also be propagated by parting of their Roots, which may be done every third Year; for if they are too often parted, or divided into small Heads, they will not make any Figure, because when they have not a Number of Stems, so as to form a good Bunch, they are soon past their Beauty, and have but a mean Appearance. The best Time to part these Roots is at *Michaelmas*, that they may be well rooted again before Winter; for when they are removed in the Spring, they seldom flower strong the same Year, espe-

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cially if the Season should prove dry. Those Sorts which grow pretty tall, are very proper to plant under large Trees, in open wilderness Quarters; but those trailing Branches are fit for the Sides of Banks, or irregular shady Slopes, where they will make an agreeable Variety.

The fifteenth Sort is used in Medicine, being accounted a very good Antiscorbutic; it is styled *Becabunga* in the Dispensatory, and in *English Brooklime*. It is very common in standing Waters in most Parts of *England*, but is seldom admitted into Gardens.

The sixteenth, seventeenth, eighteenth and nineteenth Sorts, grow in standing Waters, and are only preserved in some Botanic Gardens for the sake of Variety. These may be easily propagated by taking the Plants from the Places of their natural Growth, and putting them on the Surface of shallow standing Waters, where they will soon strike out their Roots, and multiply exceedingly.

The other six Sorts next mentioned, were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*: these are all of them hardy Plants, and will thrive in the open Air. They may be propagated by Seeds in the same manner as the Sorts above-mentioned, and deserve a Place in good Gardens for their Variety.

The twenty-sixth Sort is preserved in Gardens for the sake of its beautiful variegated Leaves, which make a pretty Appearance in Winter. This may be propagated by parting the Roots, or from Slips taken off in the Spring, and planted in a shady Border, which if duly watered, will take Root; and the *Michaelmas* following they may be transplanted where they are designed to remain.

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The twenty-seventh Sort was discovered by the late Dr. *Houfoun* at *La Vera Cruz*, from whence he sent the Seeds to *England*. This is a low annual Plant, which seldom rises above four or five Inches high. The Flowers are produced from the Wings of the Leaves, and are very small and white. This grows on sandy Ground, where the Seeds scatter, and the Plants come up in plenty.

The twenty-eighth, twenty-ninth and thirtieth Sorts, grow plentifully in the Island of *Jamaica*, from whence they have been brought into *Europe*, and are preserved in several curious Botanic Gardens, for the sake of Variety. All these being Plants natural to hot Countries, are too tender to thrive in the open Air in *England*: wherefore the Seeds should be sown on a Hot-bed in the Spring; and when come up, each Plant should be transplanted into a separate small Pot, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; and then they may be treated in the same manner as is directed for the *Samoloides*, with which Management they will flower, and perfect their Seeds in *England*.

I cannot omit mentioning the Virtues of the common Speedwell, which have caused it to be in great Request of late. It is found an excellent Remedy for the Gout, and all Rheumatic Disorders. The Method is to make a Tea of the dried Herb; the Quantity to be used is about a quarter of an Ounce, from which four common Dishes of Tea may be drawn: these are to be drank every Morning, until the Patient finds Relief. To this some add the dried Herbs of Bog-bean and Ground-pine, which they mix in equal Quantities, and make a Tea of them, from

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which many Persons have received great Benefit.

VIBURNUM, Way-faring, or Pliant Mealy Tree.

To this *Article* must be added;

1. VIBURNUM *Carolinianum*, floribus purpurascens, ex alis foliorum. *Carolina* Way-faring-tree, with purplish Flowers, coming out from the Wings of the Leaves.

2. VIBURNUM *Americanum latifolium*, floribus albis, ramulis tomentosis. Broad-leaved *American* Way-faring-tree, with white Flowers, and woolly Branches.

The first Sort grows plentifully in *South-Carolina* and *Georgia*, from whence the Seeds have been brought to *England*. This rises to the Height of eight or nine Feet, and divides into many Branches near the Ground. The Leaves, which are produced by Pairs, are somewhat like those of the *European* Kind. The Flowers are produced in small Umbels from the Wings of the Leaves, which are of a purplish Colour. These are rarely succeeded by Fruit in *England*, because it is generally late in Summer before the Flowers appear; so that if the Autumn is not very favourable, the Flowers fall off without producing Seeds.

This Plant is hardy enough to live abroad in the open Air in *England*, provided it is planted in a sheltered Situation; for as it naturally grows in Woods, where it is sheltered from Cold by taller Trees, so if it is placed in an open Situation, it is often injured by severe Frosts. It is commonly propagated by Seeds, which are procured from the Countries of its natural Growth: they should be sown in Pots filled with fresh Earth early in the Spring, and then plunged into a Hot-bed of Tanners Bark. These Pots must be constantly watered

every other Day, or at least twice a Week, according as the Earth dries ; for if it is not kept pretty moist, the Seeds will remain a long time in the Ground, before they vegetate. When the Plants come up, they must be kept clean from Weeds, and in warm Weather should have a large Share of Air admitted to them, otherwise they will draw up very weak. They must also be duly watered, for they naturally grow on moist Places, and are pretty droughty Plants. About the middle of *June*, they must be inured to the open Air by degrees. In *July* the Pots should be taken out of the Hot-bed, and placed in a sheltered Situation in the open Air ; where they may remain till *October*, when the Pots should be placed under a common Hot-bed Frame, where the Plants may be covered in frosty Weather ; but when the Weather is mild, they should be exposed as much as possible. This Plant sheds its Leaves in Autumn ; and the latter End of *March*, or the Beginning of *April*, it puts out new Leaves ; wherefore it should be transplanted, just before the Buds begin to come out. Some of them should be planted into separate small Pots filled with fresh light Earth ; and the others may be put into a warm Border of fresh light Earth, where they may remain two Years to get Strength ; and then they may be removed to the Places where they are designed to remain. Those which are potted, should be plunged into an old Bed of Tanners Bark, and covered either with Mats or Glassess, until they have taken new Root ; and then they may be placed in the open Air with other hardy Exotics, where they may remain during the Summer Season ; but in Winter they should be sheltered under

a Hot-bed Frame as before. When they have obtained Strength, they may be shaken out of the Pots, and planted in wilderness Quarters, reserving two or three Pots to be sheltered in Winter, for fear those abroad should be destroyed by severe Frost.

These Plants may also be propagated by laying down the young Branches, in the same manner as is practised for the common Sort. The best Time for laying them down, is in *March*, just before the Leaves come out. If these are duly watered in dry Weather, they will be sufficiently rooted by the following Spring, when they may be taken off, and treated in the same manner as the seedling Plants.

The second Sort is very tender. The Seeds of this Kind were sent from *Campechy* by Mr. *Robert Millar*, who found the Plants growing in low marshy Places in great Plenty. This Sort rises to the Height of eight or ten Feet, and has broader Leaves than the common Sort, which are (while young) covered pretty thick with a soft white Down ; but as the Leaves grow older, their upper Sides are greener, and lose most of the Down. The young Branches are also very woolly ; but as these grow older, it falls off. The Flowers are produced from the Wings of the Leaves in large Bunches, which are white ; but the Apices or Summits are of a red Colour, which at a small Distance appears like Stripes in the Flowers. After the Flowers are decayed, the Fruit appears, which, when ripe, turns black.

This Plant may be propagated by Seeds, which should be sown on a Hot-bed early in the Spring ; and when the Plants are come up, and fit to

to transplant, they should be each placed in a separate small Pot filled with light rich Earth, and then plunged into a Hot-bed of Tanners Bark, observing to shade them from the Sun until they have taken new Root, when they should have free Air admitted to them every Day in proportion to the Warmth of the Season; and as they are Plants which delight in low marshy Places, they must be constantly supplied with Water in hot Weather, otherwise they will not thrive. When they have filled the small Pots with their Roots, they should be shaken out, and their Roots trimmed, and then put into Pots a Size larger; but they must be plunged again into the Hot-bed, because while they are young, they will not thrive, if they are too much exposed to the open Air; tho' in warm Weather the Glasses should be every Day raised with Stones, to admit fresh Air, otherwise they will draw up too weak. At Michaelmas they should be removed out of the Hot-bed, and plunged into the Bark-bed in the Stove, where they should be kept in a moderate Temperature of Heat, and must be frequently watered; in which Stove they will retain their Leaves all the Year, and make considerable Progress; so that in two Years from sowing, they will produce Flowers and Fruit.

As these Plants grow older and stronger, they may be treated more hardily: therefore they may be placed in a dry Stove in Winter; and in the middle of Summer may be exposed abroad in a warm sheltered Situation, with other tender Exotic Plants, observing in dry Weather to water them duly, and to shift them into other Pots, as they shall require it: with which Management they will produce their Flowers every

Year toward the End of Summer; and if the Autumn proves very favourable, or the Plants are early removed into the Stove, they will perfect their Seeds very well.

This Sort may also be propagated by Layers, as the other; but when the Shoots are laid down, it will be proper to plunge the Pots into a moderate Hot-bed of Tanners Bark; which will cause them to put out Roots much sooner, than when they are exposed abroad. The Layers, when sufficiently rooted, may be taken off, and planted into separate Pots, and treated in the same manner as the seedling Plants.

VICIA, Vetch or Tares.

To this Article must be added;

1. VICIA *maxima dumetorum*. C. B. P. Bush or perennial Vetch.

2. VICIA *sepium, folio rotundiore acuto, semine nigro*. C. B. P. Bush Vetch, with a rounder sharp-pointed Leaf, and a black Seed.

3. VICIA *vulgaris, acutiore folio, semine parvo nigro*. C. B. P. Wild Vetch, with a sharper pointed Leaf, and a small black Seed.

4. VICIA *perennis incana multiflora*. Bot. Monsp. Hoary perennial Vetch, with many Flowers.

5. VICIA *perennis multiflora, majori flore cæruleo, ex albo mixto*. Bot. Monsp. Tufted perennial Vetch, with a large blue Flower mixed with white.

6. VICIA *perennis multiflora incana, insularum Stæchadum*. Inst. R. H. Perennial hoary tufted Vetch of the Stæchades.

7. VICIA *sylvestris hirsuta incana*. C. B. P. Hoary round wild Vetch.

8. VICIA *sylvestris incana, major & præcox, Parisiensis, flore suave-rubente*. Inst. R. H. The greater early hoary wild Vetch, with a soft red Flower.

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9. *Vicia sylvatica maxima, piso sylvestri similis.* J. B. The greatest wild Vetch, resembling wild Pease.

10. *Vicia sylvestris lutea, siliqua hirsuta.* C. B. P. Wild yellow Vetch, with hairy Pods.

11. *Vicia serotina perennis, flore luteo, siliqua hirsuta.* Inst. R. H. Late-flowering perennial Vetch, with a yellow Flower, and a hairy Pod.

12. *Vicia serotina perennis, flore luteo, siliqua glabra.* Inst. R. H. Late-flowering perennial Vetch, with a yellow Flower, and smooth Pod.

13. *Vicia sylvestris lutea, cum galea fusca.* J. R. Wild yellow Vetch, with a brown Standard.

14. *Vicia Cretica multiflora latifolia, flore intense purpureo.* Tourn. Cor. Broad-leaved many-flowered Vetch of Crete, with a deep purple Flower.

15. *Vicia orientalis multiflora incana, angustissimo folio.* Tourn. Cor. Hoary Eastern tufted Vetch, with a very narrow Leaf.

16. *Vicia verna villosissima & incana, flore parvo spicato, ex purpureo ad ianthinum vergente.* Tourn. Cor. The most hairy and hoary Spring Vetch, with a small spiked Flower, from a purple to a violet Colour.

17. *Vicia multiflora spicata, floribus albidis, calyce purpureo.* Tourn. Cor. Spiked tufted Vetch, with whitish Flowers, and a purple Em-palement.

18. *Vicia orientalis multiflora argentea, flore variegato.* Tourn. Cor. Eastern tufted silvery Vetch, with a variegated Flower.

19. *Vicia orientalis, flore maximo pallescente, macula lutea notato.* Tourn. Cor. Eastern Vetch, with a large pale Flower spotted with Yellow.

20. *Vicia multiflora Cassubica frutescens, lentis siliqua.* Breyn. Prod.

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Shrubby tufted Vetch, with Pods like Lentils.

21. *Vicia sylvatica multiflora maxima.* Phyt. Brit. The greatest tufted wood Vetch.

22. *Vicia segetum, cum siliquis plurimis hirsutis.* C. B. P. Small wild Tare, with many rough Pods.

23. *Vicia segetum, singularibus siliquis glabris.* C. B. P. Corn Vetch, or fine Tare, with single smooth Pods.

24. *Vicia minima, cum siliquis glabris.* Inst. R. H. The smallest Vetch, with smooth Pods.

25. *Vicia sive Cracca, foliis & siliquis longioribus.* Bot. Monsp. Vetch with longer Leaves and Pods.

26. *Vicia minima præcox, Parisiensium.* H. R. Par. The least early Vetch, with an angular Seed.

The first, third and tenth Sorts, here enumerated, grow wild in this Kingdom. The first is very common in shady Woods, and on the Sides of Banks under Trees, in most Parts of England. The third Sort is found on Shotover-hill, and in some other Places in England. And the tenth grows on Glastenbury-thorn-hill, in Somersetshire.

The second, fourth, fifth, seventh, ninth, eleventh, twelfth and thirteenth Sorts, grow wild in Germany, France and Italy, but are not Natives of this Country. These are all of them abiding Plants, whose Roots continue several Years; but their Shoots die down in Autumn, and fresh ones come out the following Spring; some of which will rise to the Height of five or six Feet, and trail over Bushes, or whatever Plants they grow near; so that they must be supported, otherwise they will appear very unsightly.

These may be propagated by Seeds, which may be sown in Drills on a Border of fresh Earth, exposed only

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only to the morning Sun. The best Time for sowing these Seeds is in *March*, and when the Plants come up, they must be kept clean from Weeds; and where they are too close together, some of them should be drawn up to give room for the remaining ones to grow strong. This is all the Culture they require till *Michaelmas*, when their Shoots will decay; at which time the Roots should be carefully taken up, and transplanted where they are designed to remain, which should be under Trees, and in other shady wilderness Quarters; where, if they are rightly disposed, they will thrive extremely well, and make an agreeable Variety.

The sixth Sort grows wild in the *Starchades Isles*, from whence the Seeds have been obtained by some curious Persons, who preserve the Sort for the sake of Variety; as is also the eighth Sort, which is found wild in the Neighbourhood of *Paris*.

The fourteenth, fifteenth, sixteenth, seventeenth, eighteenth and nineteenth Sorts, were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Gardens at *Paris*. These, tho' they are Natives of warmer Countries than *England*, yet will thrive very well in the open Air; wherefore they may be admitted into Gardens for the sake of Variety.

The twentieth Sort is also an abiding Plant, whose Shoots decay every Autumn, and fresh ones are produced in the Spring. This Sort should have a moist shady Situation, in which the Shoots will rise five or six Feet high, produce great Quantities of Flowers; and thereby afford an agreeable Variety in some obscure Places, where few better Plants will thrive.

The twenty-first Sort grows wild in some Woods in the North of *England*, as also in *Oxfordshire*. This is also an abiding Plant, which should be treated in the same manner as the former Sort.

As all these Sorts of Vetches grow near Bushes, or under Hedges, on which they climb, and are thereby supported from trailing on the Ground, so whenever they are brought into Gardens, they should be planted in the like Situation: for if they trail on the Ground, they will run over whatever Plants grow near them, and make a bad Appearance; whereas, if they are planted near any ordinary Shrubs, over which they may be allowed to ramble, their Flowers will appear scattering amongst the Branches of the Shrubs, and afford an agreeable Variety.

The twenty-second, twenty-third, twenty-fourth and twenty-fifth Sorts, are annual Plants, which grow too plentifully amongst the Corn, so as to become very troublesome Weeds in some Parts of *England*; therefore should be rooted out in the Spring, before their Seeds ripen: for if any of them are permitted to stand until the Seeds are ripe, the first hot Day after, the Pods will burst, and cast their Seeds to a great Distance, so as to fill the Ground with young Plants in Autumn. These Plants always come up in Autumn, and abide the Winter, during which time they do not appear as if they would ever become large enough to injure the Crop, amongst which they grow; but in the Spring they will send forth many lateral Shoots, so as to spread to a considerable Distance; and by their Tendrils will fasten themselves to the Stalks of Corn, or any other Plants, and thereby greatly weaken them;

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them ; and sometimes, where these Weeds are in Plenty, and the Corn but weak, they will ramp quite over it, and thereby almost destroy it. The best Time to extirpate these Weeds is in *March* or *April*, when, if they are cut up with a Spaddle in dry Weather, they will in a Day or two be effectually destroyed, so as not to recover ; and if this be repeated two or three Seasons, it will entirely clear the Land of them.

The twenty-sixth Sort is a very small annual Plant, which grows wild on chalky Hills in some Parts of *England*, but particularly near *Greenbith* in *Kent*. It flowers the Beginning of *April*, the Seeds are ripe in *May*, and the Plant soon after perishes ; so that whoever is desirous to find it, must search for it while it is in Vigour ; otherwise it is so small, that it can hardly be discovered. If this Plant is designed to be preserved in a Garden, the Seeds should be sown early in Autumn, that the Plants may get Strength before Winter ; for when they are sown in the Spring, they seldom succeed. When they are once established in a Garden, and their Seeds permitted to scatter, they will maintain themselves better than if sown by Hand, and will require no other Care but to keep them clear from Weeds.

There are some of the larger Kinds of these Vetches, as well worth cultivating in the Fields as the common Tare, and will serve for the same Purposes ; especially the second, third and ninth Sorts, which grow large, and afford a good Quantity of Seeds. These may all be cultivated in the same manner as the common Sort, and are equally hardy.

The usual Time for sowing of

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Vetches or Tares, is in the Spring, about the Middle of *February* ; but from several Experiments which I have made, I find it to be a much better Method to sow them in Autumn ; for as they are hardy enough to resist the Frost in Winter, they will get Strength early in the Spring, and will grow considerably larger than those which are sown in the Spring, and will produce a larger Quantity of Seeds, which ripening early in Summer, may be gathered in before Wheat Harvest.

The Sorts of Vetches which are cultivated for Use in the open Fields, should be sown in Drills, after the same manner as is practised for Pease. These Drills should be a Foot and half or two Feet asunder, that there may be room for the Houghing Plough to go between them, in order to destroy the Weeds, and to earth the Plants. These Drills should be about the same Depth as those usually made for Pease, and the Seeds should be scattered about the same Distance in the Drills. These Seeds should be carefully covered as soon as they are sown ; for if they are left open, the Rooks will discover them ; so that where they are not carefully watched, they will entirely devour them. Indeed these, being sown in Autumn, will be in less Danger than those which are sown in the Spring ; because there is more Food for Rooks and Pigeons in the open Fields at this Season ; and the Plants will appear much sooner above Ground. The best Time to sow them is, about the Beginning of *September* ; for the Rains which usually fall at that Season, will bring them up in a short time. Toward the latter End of *October*, the Plants will have obtained considerable Strength ; wherefore they should then be earthed

earthed up with the Houghing-plough. This Work should be performed in dry Weather, and in doing it Care must be had to lay the Earth up as high to the Stems of the Plants as possible, so as not to cover their Tops; because this will secure them against Frost. The whole Space of Ground between the Rows should also be stirred, in order to destroy the Weeds, which if carefully performed in dry Weather, will lay the Land clean till *March*; at which time the Crop should be earthed a second time, and the Ground cleaned again between the Rows; which will cause the Plants to grow vigorous, and in a little time they will spread so as to meet and cover the Spaces; whereas those sown in the Spring will not grow to half this Size, and will be very late in Flowering.

Some People sow these Vetches, and when they are fully grown, plough them into the Ground, in order to manure it. Where this is designed, there will be no Occasion to sow them in Drills at this Distance, nor to husband them in the manner before directed; but in this Case it will be the best Method to sow them in Autumn, because they will be fit to plough in much sooner the following Year, so that the Land may be better prepared to receive the Crops for which it is intended. In some Parts of *France*, and in *Italy*, these Vetches are sown for feeding of Cattle while green, and are accounted very profitable; but in those Countries Grass is more scarce than in *England*, so that I think it would not answer to sow them for this Purpose here.

Where these Plants are cultivated for their Seeds, they should be cut soon after the Pods change brown; and when they are dry, they must be

immediately stacked; for if they are suffered to lie out in the Field to receive Wet, and there comes one hot Day after it, the Pods will most of them burst, and cast out the Seeds. When the Seeds are threshed out, the Haulm is esteemed very good Food for Cattle, and some have recommended the Seeds for Horses, and affirm they are as proper for those Animals as Beans; which if true, will render them more valuable, because these will grow on the lightest sandy Land, where Beans will not thrive; consequently may be a good Improvement to some Counties in *England*, where they do not attempt to cultivate Beans.

The perennial Sorts are not proper to cultivate in the Fields, because they are of slower Growth than the annual Kinds; for they make but little Progress the first Year they are sown, and most of them delight in shady Places, and to grow under Bushes on which they can ramp; so that when they grow in the open Ground, their Branches trail; and in wet Weather, if they are close together, they will rot. Wherefore the annual Kinds of large Growth are such as should be preferred for sowing. But of all the Sorts, there is not one so good, as that with white Seeds, mentioned in the former Volumes of the *Dictionary*.

VIOLA, The Violet.

To this Article must be added;

1. *VIOLA Martia hortensis, foliis amplioribus.* C. B. P. Garden *March* Violet, with larger Leaves.

2. *VIOLA Martia inodora sylvestris, foliis mucronatis, oblongis & strictioribus.* C. B. P. Dog's Violet, with oblong and narrow-pointed Leaves.

3. *VIOLA Martia sylvestris æquante cærulea, folio & flore minore.* Hort. Cuth.

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Cath. Blue wild Violet, with a smaller Leaf and Flower.

4. *VIOLA Martia, multiplici flore rubello.* C. B. P. March Violet, with a double reddish Flower.

5. *VIOLA Martia, multiplici flore ex albo & purpureo variegato.* C. B. P. March Violet, with a double Flower, variegated with White and Purple.

6. *VIOLA Martia multiplex, flore cinereo.* H. R. Par. Double March Violet, with an ash-coloured Flower.

7. *VIOLA flore pleno maximo.* J. B. The largest double Violet.

8. *VIOLA Martia intense purpurea, flore minore pleno.* J. B. March Violet, with a small double Flower, of a deep purple Colour.

9. *VIOLA palustris rotundifolia glabra.* Mor. Hist. Smooth round-leaved marsh Violet.

10. *VIOLA Alpina, folio in plures partes dissecto.* C. B. P. Alpine Violet, with a Leaf cut into many Parts.

11. *VIOLA Alpina purpurea, exiguis foliis.* C. B. P. Purple Violet of the Alps, with small Leaves.

12. *VIOLA Alpina rotundifolia lutea.* C. B. P. Yellow Violet of the Alps, with a roundish Leaf.

13. *VIOLA montana pumila angustifolia, flore niveo inodoro.* C. B. P. Mountain dwarf narrow-leaved Violet, with a snow-white Flower without Smell.

14. *VIOLA Martia arborescens lutea.* Tabern. Icon. Yellow tree-like March Violet.

15. *VIOLA montana tricolor odoratissima.* C. B. P. The most sweet-smelling three-coloured mountain Violet.

16. *VIOLA montana alba grandiflora.* C. B. P. Great-flowered white mountain Violet.

17. *VIOLA montana lutea, subrotundo crenato folio.* Barr. Icon.

Yellow mountain Violet, with a roundish notched Leaf.

18. *VIOLA montana caerulea grandiflora.* H. R. Par. Great-flowered blue mountain Violet.

19. *VIOLA montana lutea, foliis non crenatis.* C. B. P. Yellow mountain Violet, with Leaves not notched.

20. *VIOLA montana tricolor, flore variegato.* Inst. R. H. Three-coloured mountain Violet, with a striped Flower.

21. *VIOLA Hispanica fruticosa longifolia.* Inst. R. H. Long-leaved shrubby Spanish Violet.

22. *VIOLA Pyrenaica, longius caudata, teucris folio.* Inst. R. H. Pyrenean Violet, with a long Tail, and a Tree-germander-leaf.

23. *VIOLA Aetnica erecta bicolor hirsuta minima elatior ac ramosior.* Hort. Cath. Upright two-coloured hairy very small Violet of Aetna, taller and more branching.

24. *VIOLA arvensis, flore toto luteo.* C. B. P. Field Violet, with a Flower all yellow.

25. *VIOLA caerulea maxima, cucumerinis hirsutis foliis, Virginiana.* Pluk. Phyt. The largest blue Violet of Virginia, with hairy Cucumber-leaves.

26. *VIOLA maxima, cucumerinis hirsutis foliis, Virginiana, flore luteo.* Pluk. Alm. The largest Violet of Virginia, with hairy Cucumber-leaves, and a yellow Flower.

27. *VIOLA Virginiana, platanifere foliis, parvis & incanis.* Pluk. Mantiff. Virginian Violet, with small hoary Leaves, shaped like those of the Plane-tree.

28. *VIOLA Cretica saxatilis lutea odoratissima, leucis foliis.* Tourn. Cor. Rock Violet of Crete, with a very sweet yellow Flower, and Wall-flower-leaves.

29. *VIOLA orientalis montana grandiflora, violacei coloris. Tourn. Cor.* Mountain Eastern Violet, with a large Flower of a purple Colour.

30. *VIOLA Martia Virginiana minor, foliis longius mucronatis, flore purpureo, inodora.* Small Virginian Violet, with long-pointed Leaves, and a purple Flower without Smell.

These several Sorts of Violets, here enumerated, are preserved in some curious Gardens for the sake of Variety. They are all hardy enough to thrive in the open Air in *England*; but those Sorts which are Natives of the *Alps*, and other mountainous Places, must be planted in a shady Situation, and should have a pretty strong moist Soil, otherwise they will not thrive.

The first Sort differs from the common Violet, only in having larger Leaves, which may proceed from the Culture; for I have frequently observed, when the Roots of Violets have been gathered in the Woods, and brought into Gardens, that their Leaves have been greatly enlarged in one Year; but then they have not been so productive of Flowers as before.

The second, third, ninth, tenth, eleventh, twelfth, thirteenth, twenty-first, twenty-second, twenty-third, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh and thirtieth Sorts, being Plants of no great Beauty, are only preserved for the sake of Variety by some curious Persons; but the fourth, fifth, sixth, seventh and eighth Sorts, merit a Place in every good Garden, for the sake of their double Flowers, which are extremely sweet. The seventh Sort produces very large full Flowers, which are almost as large as the Double Cinamon-rose; so that they make a fine Appearance, and the

Flowers are also very sweet. This Plant should be planted on a strong Soil in a shady Situation, where they will thrive and flower much better than in a rich Ground.

The fifteenth, sixteenth, seventeenth, eighteenth, nineteenth and twentieth Sorts, being also very pretty Plants, may be allowed a Place on a North Border in the Flower-garden, for the sake of Variety. These are of the Kind of the Pansies or Hearts-ease, but their Flowers are much larger; and as their Roots abide several Years, they may be propagated by parting them. The best Time for this Work is at *Michaelmas*, that they may be well rooted before Spring; otherwise they will not flower very strong the following Spring.

The twenty-eighth and twenty-ninth Sorts were discovered by Dr. *Tournefort* in the *Levant*. These, tho' they are Natives of warmer Countries, yet they will thrive very well in the open Air in *England*. They must also be planted in a shady Border, and in dry Weather they should be often watered, which will continue their Flowers a long time: for as these are also of the Pansy Kind, they continue in like manner to produce new Flowers, from the Wings of the Leaves, for at least two Months, if they are not stunted by Drought. The twenty-eighth Sort, having very sweet Flowers, well deserves a Place in curious Gardens.

VIRGA AUREA, Golden-rod.

To this Article must be added;

1. *VIRGA AUREA latifolia serrata. C. B. P.* Golden-rod with broad sawed Leaves.

2. *VIRGA AUREA montana, latiore folio glabro. H. R. Par.* Mountain Golden-rod, with a broad smooth Leaf.

3. *VIR-*

3. *VIRGA AUREA montana, latiore folio hirsuto. R. H. Par.* Mountain Golden-rod, with a broad hairy Leaf.

4. *VIRGA AUREA Alpina, laurinis rigidioribus foliis. Bocc. Mus.* Alpine Golden-rod, with stiffer Bay-leaves.

5. *VIRGA AUREA major, foliis glutinosi & graveolentibus. Inst. R. H.* Greater Golden-rod, with clammy and stinking Leaves.

6. *VIRGA AUREA minor, foliis glutinosi & graveolentibus. Inst. R. H.* Smaller Golden-rod, with clammy and stinking Leaves.

7. *VIRGA AUREA major, foliis glutinosi & graveolentibus, gallas ferens. Inst. R. H.* Greater gall-bearing Golden-rod, with clammy and stinking Leaves.

8. *VIRGA AUREA Virginiana annua. Zan.* Annual Virginian Golden-rod.

9. *VIRGA AUREA Americana hirsuta, radice odorata. Joncq.* Rough American Golden-rod, with a sweet-smelling Root.

10. *VIRGA AUREA Marylandica caesa glabra. Hort. Elth.* Smooth Golden-rod of Maryland.

11. *VIRGA AUREA Americana annua graveolens, flore minimo, foliis conjugatis, & hyperici modo perforatis. Houst.* Annual stinking American Golden-rod, with a very small Flower, and Leaves growing by Pairs, which are perforated in the manner of St. John's-wort.

12. *VIRGA AUREA Americana, urticae foliis rugosis conjugatis & hirsutis, florum spicis foliosis. Houst.* American Golden-rod, with rough Nettle-leaves growing by Pairs, and the Spikes of Flowers set with small Leaves.

13. *VIRGA AUREA Americana fruticosa, salicis folio, floribus quasi umbellatis. Houst.* Shrubby Ame-

rican Golden-rod, with a Willow-leaf, and Flowers growing almost in an Umbel.

The first, second, third, fourth, ninth and tenth Sorts, are abiding Plants, which may be propagated by parting their Roots, in the same manner as hath been directed for the Sorts enumerated in the former Volumes of the *Gardeners Dictionary*. These Plants continue a long time in Flower, and appearing toward the latter Part of Summer, when there are few better Sorts in Beauty, are worthy of a Place in every large Garden, especially as they are very hardy, and require very little Care to cultivate them; for they will thrive in the Shade under Trees, and if they are taken up and parted every fourth Year, they will thrive and flower extremely well.

The fifth, sixth and seventh Sorts, seldom continue longer than two or three Years, and therefore should be often renewed. These may be increased by parting their Roots; but the Plants which are thus parted, seldom thrive so well as those which are raised from Seeds; but as these Plants do not perfect their Seeds every Year in *England*, the other Method must be practised to preserve the Kinds. The best Time for this Work is in the Autumn, that they may be well rooted before the Spring, otherwise they will not flower very strong. These Sorts should be planted on a loamy Soil on open Borders; for they will not thrive under the Drip of Trees.

The eighth Sort is an annual Plant of no great Beauty, which if permitted to scatter its Seeds, will become a Weed over the Garden. This Plant is now become a common Weed in the Fields in divers Parts of *England*; but it is generally believed, the Seeds were at first blown out

out of Gardens ; for it was originally brought from *America*.

The eleventh, twelfth and thirteenth Sorts, were discovered by the late Dr. *Houfoun* at *La Vera Cruz*. These being tender Plants, will not live in the open Air in *England*. They may be propagated by Seeds, which should be sown on a moderate Hot-bed early in the Spring ; and when the Plants are come up, they should be transplanted into Pots filled with fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark ; observing, after they have taken new Root, to admit a large Share of free Air to them every Day, when the Weather is warm, as also to water them constantly every Day ; for they naturally grow in moist Places. The eleventh Sort, which is an annual Plant, will flower toward the Middle of *June*, and the Seeds will ripen the End of *August* ; when some of them should be sown to come up before Winter, because the Seeds will more certainly grow at this Season, than in the Spring, and the Plants will grow much stronger. The twelfth Sort, being a biennial Plant, rarely flowers the first Season ; therefore this, and the thirteenth Sort, (which is an abiding Plant) should be removed into the Stove at *Michaelmas*, and placed where they may have a temperate Degree of Warmth in Winter, in which they may be preserved ; but they must be frequently refreshed with Water, tho' in very cold Weather it must not be given in great Quantities. With this Management the Plants will flower extremely well, and add to the Variety in the Stove.

VISNAGA, *Spanish Picktooth*.

The Characters are ;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of
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several Petals, which rest on the Empalement ; which afterward becomes the Fruit, composed of two oblong furrowed Seeds. To these Notes must be added, The Leaves are finely divided like Fenel ; and when the Flowers fall off, the Umbel contracts together.

The Species are ;

1. *VISNAGA seu Gingidium. Mor. Umb.* Common *Spanish Picktooth*.

2. *VISNAGA seu Gingidium Montis Libani. Munt. Plant.* Greater Toothpick of *Mount Libanus*.

The first Sort grows plentifully in the South of *France*, as also in *Spain* and *Italy*. The *Spaniards* make use of the Foot-stalks of the Umbel for Tooth-picks, from whence it obtained this Name. This is preserved in the Gardens of some curious Persons, for the sake of Variety. It is an annual Plant, and perishes soon after the Seeds are ripe. The Seeds of it should be sown early in the Autumn, that the Plants may obtain Strength before the Frost. These will endure the Cold of our Winters extremely well, provided the Seeds are sown on a dry Soil ; for they do not very well bear transplanting ; therefore the Seeds should be sown where the Plants are designed to remain. In the Spring they should be thinned where they come up too thick, leaving them about six or eight Inches asunder ; and if they are afterward kept clear from Weeds, it is all the Culture they require. In *June* they will flower, and their Seeds will ripen in *August*.

The second Sort is less common in *England* than the first : this is found on *Mount Libanus*, and in several other mountainous Places in the East Country. The Umbels of this Sort are much larger than of the former, and the Leaves of the Plant

are not so finely cut. The Seeds of this Sort have been often brought into *England*, from which I have raised the Plants, which have grown very well the former Part of the Season; but they have always decayed soon after *Midsummer*, so that I never could preserve any of them to flower.

VITIS, The Vine.

In the former Volumes of the *Gardeners Dictionary*, I have enumerated several Sorts of Grapes, which were the most esteemed in *England*, either for the Table or Vineyard; but as there are some curious Sorts, which have been lately introduced into *England*, I shall mention them in this Place, and then add somewhat relating to their Culture, which was either omitted in the former Volumes, or not fully explained.

1. *The White Muscat* or *Frontinac* of *Alexandria*, by some called the *Jerusalem Muscat*, and *Gros Muscat*. The Berries are of an oval Shape, and very large; they grow very loose on the Bunches, are very fleshy and firm, and when ripe are of a greenish White, and have a delicate Flavour, somewhat like the white *Frontinac*, but not quite so strong. This being a very late Grape, rarely ripens in *England* without some Assistance; but as it is an excellent Fruit when ripe, it merits a Place against Hot-walls; where, with a little artificial Heat, it will ripen very well.

2. *The Red Muscat* or *Frontinac* of *Alexandria*, by some called *Red Jerusalem Muscat*. This is not quite so late in ripening as the former; and is more esteemed about *Paris*, where, against good Walls, it ripens very well without any artificial Heat. The Berries of this Kind are not quite so large as those

of the White; but they are of the same Form, and are equal in Goodness.

3. *The White Melie Grape*. The Berries of this Sort are of a middle Size, somewhat oval-shaped, and grow pretty close on the Bunches. When these are ripe, they are of a greenish White, covered with a Flue, which wipes off: the Juice is very sweet, and makes an excellent White-wine. This ripens very well against Walls, and in a good Season will ripen on Espaliers or in Vineyards.

4. *The White Morillon*. This is a middle-sized Grape, almost round, and grows pretty close on the Bunches; the Juice is well flavoured, but the Skin is tough. This ripens very well against good Walls.

5. *The Alicant Grape*. This is a large Fruit of a deep red Colour, covered with a blue Flue; the Bunches are also very large, and the Grapes grow sparsely on them. The Juice is rich and vinous, when the Grapes are thoroughly ripe; which seldom happens in this Country, unless they are brought forward with an artificial Heat. This is the Sort of Grape of which the strong *Spanish* Wine is made.

6. *The White Auvernat*. This is in Shape very like the black *Auvernat* Grape: it grows pretty close on the Bunches, and is of a muddy white Colour when ripe. The Juice of this Sort is not so palatable to eat as many others, but it makes an excellent White-wine.

7. *The Grey Auvernat* is also shaped somewhat like the former; but is of a pale murrey Colour, inclining to brown. This Sort produces its Grapes looser on the Bunches than the former, and ripens sooner; wherefore it is better to plant for Vineyards, because it seldom fails to ripen in a good Aspect.

8. *The*

8. *The Raisin Muscat.* This is a large oblong pointed Grape, whose Berries are firm and fleshy, and are loosely placed on the Bunches. Being a very late Fruit, it will not ripen in *England* without the Assistance of a Hot-wall. This Sort of Grape is frequently brought over from *Portugal*, and is sold in Winter in the *London* Markets.

There have been several other Sorts of Grapes introduced into this Country of late; but there are not many of them worth cultivating, being too late in ripening to come to any Perfection in *England*, without the Assistance of artificial Heats; and there are amongst the Sorts here enumerated, some of the most valuable Kinds which deserve Hot-walls; for which Reason I shall not describe any more Sorts, since it would be an endless Task to enumerate all the Sorts of Grapes, which are known in *Europe*; for as new Varieties arise frequently from the Seeds in hot Countries, the Inhabitants of those Wine Countries, who are curious in collecting the several Sorts, are annually adding to their Collections. The late Duke of *Tuscany*, who was formerly very curious in collecting all the Sorts of *Italian* and *Greek* Grapes into his Vineyards, was possessed of upward of three hundred several Varieties; many of which were of little Worth, only were kept by way of Curiosity.

There have lately been some Plants of the *Tokay* Grapes brought into *England*. When these Cuttings were procured Abroad, it was supposed, that the *Tokay* Wine was made of only one Sort of Grape: but by those of the Cuttings which did succeed here, it appears that there are several Sorts of Grapes cultivated in the Vineyards where that Wine is

made, some of which are white, and others are black; but they are not extraordinary good Grapes for this Country.

Amongst the Claret Grapes there are also several Varieties, which differ in the Colour of their Juice; some of them having a very pale-red Juice, which will not give much Colour to the Wine; and others have a deep-coloured Juice, which will stain like the Juice of Mulberries; and it is the latter Sort which the Vine-dressers abroad prefer. The Leaves of this Sort of Grape turn of a deep purple Colour all over, at the time when the Fruit is ripening; whereas the Leaves of the paler Sorts are like the Juice of the Fruit, of a more lively purple Colour; so that the Sorts of these Claret Grapes are as easily distinguished by their Leaves in the Autumn Season, as by the Fruit when ripe.

As to the Culture of Vines against Walls and Pales, that being fully treated of in the former Volumes of the *Gardeners Dictionary*, I shall not enlarge on it in this Place; but shall add some Directions for the planting and managing of Vines against Hot-walls, as also on Espaliers, because both these Methods are at present practised in *England*.

The Method of building Hot-walls will be treated under the Article *Wall*; wherefore I shall pass it over in this Place, and proceed to the preparing of the Ground for planting. The Borders against these Hot-walls should have the Earth taken out three Feet deep, (provided the Ground is dry) otherwise two Feet will be sufficient; because in wet Land the Borders should be raised at least a Foot above the Level of the Ground, that the Roots of the Vines may not be injured by the Water.

When the Earth is taken out, the Bottom of the Trench should be filled with Stones; Lime, Rubbish, &c. a Foot and half thick, which should be levelled and beaten down pretty hard. The Trenches should be made five Feet wide at least, otherwise the Roots of the Vines will in a few Years extend themselves beyond the Rubbish; and finding an easy Passage downwards, will run into the moist Ground, and thereby imbibe so much Wet, as to lessen the vinous Flavour of the Grapes. But before the Rubbish is filled into the Trench, it is a better Method to raise a nine Inch Wall, at five Feet Distance from the Hot-wall, which will keep the Rubbish from intermixing with the neighbouring Earth, and also confine the Roots of the Vines to the Border in which they are planted, so that they cannot reach to the Moisture of the Ground round about them. This nine Inch Wall should be raised to the Height of the intended Border; and will be of great Use to lay the Timbers of the Frames upon, which are designed to cover the Vines when they are forced, whereby the Timbers will be better preserved from rotting; and where the Borders are raised to any considerable Height above the Level of the Ground, these Walls will preserve the Borders from falling down into the Walks. But in carrying up of these Walls, it will be proper to leave, about eight or ten Feet Distance, little Openings to let the Water pass off; because when the Rubbish at the Bottom of the Trench unites and binds very hard, the Water cannot easily find a Passage thro' it. Therefore it will be the better Method to leave these small Passages in the Wall, lest the Moisture, being confined at Bottom, should be pent up as in a Ditch,

which will be of ill Consequence to the Vines.

When the Walls are finished, and thoroughly dry, the Rubbish should be filled in, as before directed; then there should be fresh light Earth laid on, about a Foot and a half thick, which will be a sufficient Depth of Soil for the Vines to root in. These Borders should be thus prepared at least a Month or six Weeks before the Vines are planted, that they may have Time to settle. The best Time to plant them is about the End of *March*, or the Beginning of *April*, according as the Season proves early or late. These I would also advise to be planted with Cuttings, rather than rooted Plants, for the Reasons assigned in the former Volumes of the *Dictionary*; but there should be two Cuttings put into each Hole, lest one of them should fail; for if both should succeed, the weakest of them may be easily drawn out the following Spring. These Cuttings should be well chosen from good bearing Vines, and the Shoots well ripened, otherwise they will never make good Plants. The Distance these Vines should be allowed, is the same as for common Walls, *i. e.* about six Feet. In planting of them there should be Holes opened with a Spade, about fourteen or fifteen Inches deep; for if there are but three or four Inches of good Earth under the Foot of the Cuttings, it will be sufficient. Then the two Cuttings should be laid in the Hole a little sloping, but in such a manner as not to touch or cross each other; because if they do, when one of them is taken away the following Spring, it cannot be done without disturbing the other. Then the Earth should be filled into the Holes, and gently pressed with the Foot to the Cuttings, and raised in

a Heap over them, so as just to cover the uppermost Eyes of the Cuttings. Then lay a little Mulch on the Surface of the Ground about the Cuttings, to prevent the Sun and Air from drying of the Earth; and if the Spring should prove very dry, they should have some Water once a Week, which will be as often as these Cuttings require; for nothing will destroy them sooner than too much Water, which rots their Bark, and destroys them. If these Cuttings are well chosen, and the Instructions here laid down duly observed, they will make strong Shoots the first Summer; for I have frequently planted Cuttings, which have shot five Feet in one Year; but then I carefully rubbed off all the side-dangling Shoots as they were produced, and never permitted more than one Shoot to remain on each Cutting; which is what should always be observed by those who have the Management of Vines. With this Management there will be little Hazard of the Cuttings taking Root; for in upwards of five hundred Cuttings, which I received from *Italy*, which were cut off from the Vines in the Beginning of *November*, and wrapped up in Moss, and put on board the Ship, which did not arrive at the Port of *London* till *March*, so that they were full four Months cut off before they were planted; yet there were not twenty of the Number which failed, and many of them shot above six Feet the first Season.

As I have directed the pruning of Vines to be performed in the Autumn, in the former Volumes of the *Dictionary* (which is without Dispute the best Season for this Work); so in preserving of the Cuttings till the planting Season, I have advised them to be cut to their Lengths, and their Ends laid into the Ground, and then

covered with Litter to keep the Air from them: but since, I have found it a much better way not to shorten the Shoots, from which the Cuttings are to be made, but to lay their Ends just into the Ground, about two Inches deep, and so leave them at full Length, only observing to cover them with dry Litter or Peas-haulm in frosty dry Weather; but in moist Weather the Covering should not remain on, because it would make the Cuttings grow mouldy, which would greatly injure them. Then in the Spring, when they are to be planted, they should be taken out of the Ground, and their upper Part cut off, so as to reduce them to about fourteen Inches in Length, according to the Distance of the Buds or Eyes; for those Cuttings, whose Buds grow pretty close together, need not be left more than one Foot long; but in others fourteen Inches will be full short. The leaving the upper Part of the Shoots on, all the Winter, is of great Service to the Cuttings, because when they are cut off in Autumn, the Air penetrates the wounded Part, and greatly injures the lower Eyes.

The Management of these Vines, for the three first Years after planting, being the same as is practised for those against common Walls, I shall not repeat it in this Place, having fully treated thereof in the former Volumes; only will observe, that during these three Years, the Vines should be encouraged as much as possible, and the Shoots not left too long, nor too many in Number on each Root, that they may be duly ripened and prepared for bearing the fourth Year, which is the soonest they should be forced; for when any Sorts of Fruit-trees are forced by Fire too young, they seldom continue above three or four Years, and

during that time they produce very weak Shoots, and what Fruit they produce, is small, and not well-flavoured; so that in being over-hasty to save a Year or two, very often the whole Design is lost; for unless the Trees are in a proper Condition to bear much Fruit, it is not worth while to make Fires for a small Quantity of starved ill-tasted Fruit; the Expence and Trouble being the same for ten or twelve Bunches of Grapes, as it will be for a hundred or more.

These Vines should not be forced every Year; but with good Management they may be forced every other Year; tho' it would be yet better, if it were done only every third Year: therefore in order to have a Supply of Fruit annually, there should be a sufficient Quantity of Walling built, to contain as many Vines as will be necessary for two or three Years, so that by making the Frames in Front moveable, they may be shifted from one Part of the Wall to another, as the Vines are alternately forced. Therefore I would advise about forty Feet in Length of Walling, to be each Year forced, which is as much as one Fire will heat; and when the Vines are in full Bearing, will supply a reasonable Quantity of Grapes for a middling Family.

In most Places where these Hot-walls have been built, they are commonly planted with early Kinds of Grapes, in order to have them early in the Season: but this, I think, is hardly worth the Trouble; for it is of but little Consequence to have a few Grapes earlier by a Month or six Weeks, than those against common Walls: therefore I should advise, whenever a Person is willing to be at the Expence of these Walls, that they may be planted with some of the best Kinds of Grapes, which

rarely come to any Perfection in this Country, without the Assistance of some artificial Heat; of which the following Sorts are the most valuable.

The Red Muscat of Alexandria.
The White Muscat of Alexandria.
The Raisin Muscat, or Frontiniac.
The Red Frontiniac.
The Grisly Frontiniac.
The White Frontiniac.
The Black Frontiniac.
The Burdelais or Burlace.
The Malmsey Muscadine.
The St. Peter.

When the Vines which are planted against the Hot-walls, are grown to full Bearing, they must be pruned and managed after the same manner as hath been directed in the former Volumes of the *Dictionary* for those against common Walls; with this Difference only, *viz.* that those Seasons when they are not forced, the Vines should be carefully managed in the Summer for a Supply of good Wood, against the Time of their being forced; so that it will be the better Method to divest the Vines of their Fruit, in order to encourage the Wood; for as few of the Sorts will ripen without Heat, it is not worth while to leave them on the Vines during the Seasons of resting, except it be the common Frontiniacs, which in a good Season will ripen without artificial Heat; but even during these, I would not advise many Grapes to be left on them, because as the Design of resting the Vines is to encourage and strengthen them, therefore all possible Care should be had, that the young Wood is not robbed by over-bearing; for those Years when the Vines are forced, the Joints of the young Wood are generally drawn farther asunder, than they ordinarily grow in the open Air; so that when they

they are forced two or three Years successively, the Vines are so much exhausted, as not to be recovered into a good bearing State, for some Years ; especially if they are forced early in the Season, or where great Care is not taken in the Summer, to let them have a proper Share of free Air, to prevent their being drawn too much, and to ripen their Shoots. Those Years when the Vines are forced, the only Care should be to encourage the Fruit, without having much Regard to the Wood ; so that every Shoot should be pruned for Fruit, and none of them shortened for a Supply of young Wood, because they may be so managed in the other Year's Pruning, as to replenish the Vines with new Wood. Those Vines which are designed for Forcing in the Spring, should be pruned early the Autumn before, that the Buds which are left on the Shoots, may receive all possible Nourishment from the Vine ; and at the same time the Shoots should be fastened to the Trelase in the Order they are to lie ; but the Glasses should not be placed before the Vines, till about the Middle or End of *January*, at which time also the Fires must be lighted ; for if they are forced too early in the Year, they will begin to shoot before the Weather will be warm enough to admit Air to the Vines ; which will cause the young Shoots to draw out weak, and thereby their Joints will be too far asunder ; consequently there will be fewer Grapes on them, and those Bunches which are produced, will be smaller, than when they have a sufficient Quantity of Air admitted to them every Day.

If the Fires are made at the Time before directed, the Vines will begin to shoot the latter End of *February*, which will be six Weeks earlier than

they usually come out against the common Walls ; so that by the time that other Vines are shooting, these will be in Flower, which will be early enough to ripen any of those Sorts of Grapes perfectly well. The Fires should not be made very strong in these Walls ; for if the Air is heated to about twenty Degrees above the temperate Point, on Mr. *Fowler's* Thermometers, it will be sufficiently warm to force out the Shoots leisurely, which is much better than to force them violently. These Fires should not be continued in the Day-time, unless the Weather should prove very cold, and the Sun not appearing to warm the Air, at which times it will be proper to have small Fires continued all the Day ; for where the Walls are rightly contrived, a moderate Fire made every Evening, and continued till ten or eleven of the Clock at Night, will heat the Wall, and warm the inclosed Air, to a proper Temperature ; and as these Fires need not be continued longer than till about a Week or ten Days in *April*, (unless the Spring should prove very cold) the Expence of the Fire will not be very great, because they may be contrived to burn either Coal, Wood, Turf, or almost any other Sort of Fuel ; tho' where Coal is to be had reasonable, it is the easiest Fuel for these Fires, and will not require much Attendance.

When the Vines begin to shoot, they must be frequently looked over to fasten the new Shoots to the Trelase, and to rub off all dangling Shoots ; in doing of which great Care must be taken ; for they are very tender, and very subject to break when any Violence is offered. The Shoots should also be trained very regular, so as to lie as near as possible at equal Distances, that they

may equally enjoy the Benefit of the Air and Sun ; which is absolutely necessary for the Improvement of the Fruit. When the Grapes are formed, the Shoots should be stopped at the second Joint beyond the Fruit, that the Nourishment may not be drawn away from the Fruit in useless Shoots, which must be avoided as much as possible in these forced Vines ; upon which no useless Wood should be left, which will shade the Fruit, and exclude the Air from it by their Leaves.

As the Season advances, and the Weather becomes warm, there should be a proportionable Share of free Air admitted to the Vines every Day, which is absolutely necessary to promote the Growth of the Fruit ; but the Glasses should be shut close every Night, unless in very hot Weather ; otherwise the cold Dews in the Night will retard the Growth of the Fruit. The Bunches of the White Frontinac, the Raisin Muscat, St. Peter, and Burdelas, should also be looked over, and the small Grapes cut out with Scissars, in order to thin them ; for these Sorts grow so close together on the Bunches, that the Moisture is detained between the Grapes, which often occasions their rotting ; and the Air being excluded from the middle of the Bunches, the Grapes never ripen equally ; which by this Method may be remedied, if done in time : and as these Grapes are protected by the Glasses, from the Blights which frequently take those which are exposed, there will be no Hazard in thinning these Grapes soon after they are set ; at which time it will be much easier to perform this Operation, than when the Grapes are grown larger, and consequently will be closer together. But in doing of this, the Bunches must not be much

handled ; for if any of the Grapes are the least bruised, or the Flue which there naturally is upon them, be rubbed off, their Skins will harden, and turn of a brown Colour ; after which the Fruit will never thrive. Therefore the Scissars which are used for this Operation, should have very narrow Points, that they may be more easily put between the Grapes, without injuring the remaining ones. The other Sorts of Grapes, which I have recommended for these Hot walls, do not produce their Fruit so close together on the Bunches ; for which Reason they will not require this Operation, unless by any Accident they should receive a Blight, which often occasions a great Inequality in the Size of the Grapes ; which, whenever it thus happens, will require to be remedied by cutting off the small Grapes, that the Bunches may ripen equally, and appear more sightly.

By the Beginning of *July*, these Grapes will be almost full-grown ; therefore the Glasses may be kept off continually, unless the Season should prove very cold and wet ; in which Case they must be kept on every Night, when the Days are cold or wet, and only opened when the Weather is favourable ; for as the racy vinous Flavour of these Fruits is increased by a free Air, so during the Time of their ripening, they should have as large a Share as the Season will admit to be given them. But when the cold Nights begin to come on in *August*, the Glasses must be every Night shut to exclude the Cold, otherwise it will greatly retard the ripening of the Fruit ; for although the Vines are brought so forward in the Spring, as that the Fruit by this Season are quite turned to their Colour, yet if they are exposed to the cold Dews, and the morning

morning Frosts, which frequently happen toward the latter Part of *August*, it will prevent the Fruit from ripening so kindly as when they are guarded from it. When the Grapes begin to ripen, they must be carefully guarded against Birds and Wasps, otherwise they will be in Danger of Destruction in a short time; to prevent which, the Vines should be carefully covered with Nets, so as to exclude the Birds, which will make great Havock with the Grapes, by breaking of their Skins; and if there are a few Twigs covered with Bird-lime, placed here-and-there on the Outside of the Nets, it will be of Service; because the Birds are often so bold as to attempt to break the Nets to get to the Grapes, and may be managed on these Twigs; from which, whenever that happens, they should not be disengaged, but suffered to remain to keep off their Companions; and if they get off themselves, it will have the desired Effect; for few other Birds will come to the same Place that Season, as I have more than once experienced.

As to the Wasps, the best Method is to hang up some Phials, about half filled with sugared Water, and rub the Necks of the Phials with a little Honey, to draw all the Wasps to them, which by attempting to get at the Liquor, will fall into the Phials, and are drowned; wherefore these should be carefully looked over once in three or four Days, to take out the Wasps, and destroy them, and to replenish the Phials with Liquor. If this be duly observed, and the Phials placed in time, before the Grapes are attacked, it will effectually prevent their being injured; but where these Precautions are not taken, the Grapes will be in Danger of being absolutely destroyed: for

as these early Grapes will turn Colour long before any others against common Walls, they are in much more Danger, there being no other Fruit for them in the Neighbourhood; whereas, when Grapes in general begin to ripen, there is a large Quantity in almost every Garden; so that if they destroy a Part in each Garden, yet there will be a greater Chance to have some escape, than where there is only one Wall for them to attack.

These Sorts of Grapes, being forced in the manner before directed, will begin to ripen early in *September*, especially the Black and Red Frontinacs, which will be fit for the Table a Fortnight earlier than the other Sorts; but as the Design of forcing them is to have them in as great Perfection as possible in this Climate, they should not be gathered until they are thorough, ripe; for which Reason some of the later Sorts should be left on the Vines till *October*, or sometimes longer; tho' then the Glasses should be kept over them in wet and cold Weather, to protect the Fruit from it: but whenever the Weather is fair, the Glasses must be opened to let in the free Air; otherwise the Damps, arising from the Earth at that Season, will cause a Mouldiness upon the Grapes, which will rot them: so that if the Season should prove very cold and wet, it will be proper to make a small Fire every Night, to dry off the Damps, and prevent this Injury. By this Method the Grapes may be continued upon the Vines, until the Middle or latter End of *November*, when some of the large late-ripe Sorts will be in very great Perfection. But most People in *England* gather their Grapes too soon, never suffering them to remain on the Vines to ripen, even in the warmest Seasons; when,

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when, if they are left on till after *Michaelmas*, they will be perfectly good.

Of late Years many Persons have planted Grapes against Espaliers, which in some Places have succeeded very well in good Seasons ; but if these are not planted in a good Soil, and to a proper Aspect, and the Sorts rightly chosen, they seldom produce any Fruit which are fit to be eaten. The Soil proper to plant Vines in Espaliers, should be the same as hath been directed for Vineyards ; viz. either a chalky or gravelly Bottom, with about a Foot and half of light hazel Earth on the Top, a little sloping to the South or South-east, that the Wet may easily find a Passage, so as not to remain on the Ground. In such a Soil situated to the Sun, and screened from cold Winds, there are several Sorts of Grapes, which in warm Seasons will ripen very well in *England*.

But there are some curious Persons, who line the Back-side of their Espaliers with low reed Hedges, and others who do it with thin slit Deals; both of which are a good Defence to the Vines against Blights in the Spring, and accelerate the ripening of the Grapes; so that in tolerable Seasons they will come to good Maturity. Neither of these Methods are very expensive; for these close Fences need not be more than four Feet high; because the Vines, being to be managed after the same manner as those in Vineyards, will never rise above the Height of a Man; and the bearing Shoots must always be trained about two Feet above the Surface of the Ground, so that the Fruit-branches will be always below the Top of the close Fences; and as for the upright Shoots, which are designed for the next Year's Bearing, it matters not how much they rise

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above the Fence: wherefore these may have a loose Trelase, to which they may be fastened, to prevent their over-hanging of the Fruit.

In the making of these Kinds of close Espaliers for Grapes, it will be proper to lay one strong oaken Plank (such are procured in breaking up of old Ships or Barges) next the Surface of the Ground, which will last many Years sound, and be very useful in supporting of the Fences. If these Planks are fifteen Inches broad, as they may always be readily procured; then, if the upper Part of the Fence be Reeds, there may be two Lengths cut out of them (provided the Reeds are of a due Length) without including their Tops. In the Front of these Hedges should be a slight Trelase, to fasten the Vines to, which may be made of Ash-poles. The upright Poles of these Trelases need not be nearer together than eighteen Inches; and if there are three cross Poles, at about a Foot asunder, they will be sufficient to fasten the bearing Shoots of the Vines at proper Distances, in the manner they are designed to be trained; which should be in such Position, that the Fruit may not be over-shadowed by the Branches. And if the upright Poles are cut so long, as to be a Foot and half above the Reeds, they will be tall enough to support the upright Shoots for the next Year's Bearing; which being trained singly at proper Distances, will have the Advantage of the Sun and Air to ripen the Wood, much better than where four or five Shoots are fastened to the same Pole.

To this Trelase the Reeds may be fastened with Hoops on the Back-side, after the manner usually practised in making of common reed Fences ; and if on the Top of the Reeds there is fastened a thin Slip of Deal,

Deal, to secure the Tops of the Reeds from being broken, it will preserve them a long time. In making of these Fences the Reeds should not be laid too thick; for that will not only be more Expence, but will be troublesome to fasten, and not last so long, as when they are made of a moderate Thickness. Therefore, as the Reeds will be cut into two Lengths, each Bundle will spread about six Feet in Length; observing first to spread the bottom Parts of the Bundles, which contain the largest Ends of the Reeds, the whole Length; and then the upper Parts of the Reeds should be reversed and spread in Front of the other, which will make the upper Part of the Fence almost as thick as the Bottom. But neither these, nor the boarded Fences, need be made till the Vines are in full Bearing, which will be the fourth or fifth Year after planting, according to the Progress they make; during which time the Shoots may be supported by any common Stakes. For if the Fences are made before the Vines are planted, as is frequently practised, they will be half decayed by the time the Vines are fit to bear; and before this Time, the Fences are of no Use to them.

The Sorts of Grapes which are proper to plant against these Fences, are,

The Miller Grape,

The Black Morillon.

The Chasselas White.

The White Muscadine.

The Melie Grape.

The Sweet Water.

The Auvernat, or true Burgundy.

These, if well managed, will ripen very well, provided the Season is tolerably good, and will come in soon after those on the Walls so that if they are taken care of, by

hanging of Mats before them, when the Nights prove cold in Autumn, and are permitted to hang till *October*, the Fruit will prove very good. But where the Sweet Water Grape is planted against these Fences, they will require to be covered in the Spring, at the time when they are in Flower, if there should be cold Nights; otherwise the Bunches will receive a Blast, which will destroy the greatest Part of the Grapes, so that many times there will not be more than six or eight good Grapes on each Bunch; and the others will be small starved Fruit, hardly so large as the smallest Pease.

In planting of these Vines, either for open Espaliers, or the close Fences, they should be performed in the same manner as for Vineyards, which should be from Cuttings planted six Feet asunder, putting two into each Hole. And as these are only designed for the Table, a single Row of a moderate Length will be sufficient to supply a Family, where there are others against Walls to come before them. But where a Person is inclinable to have more Rows than one, they should be placed twelve Feet asunder, that they may equally enjoy the Sun and Air.

As to the Pruning and other Management of these Vines, that being the same as for those in the Vineyard, I shall not repeat it in this Place, it being fully inserted in the former Volumes of the *Dictionary*: and to which I have nothing here to add, more than that I find the Grape which is preferred by the most skilful *Vignerons* in *France*, and what they call the *Auvernat*, as before-mentioned, is the same which in *England* is called the *Blue Cluster Grape*, and hath been long in this Country planted

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planted as an eating Grape against Walls ; so that from these, Cuttings may be easily procured. But it is to be feared, that the bad Seasons, and the ill Success which has attended the few Vineyards already planted in *England*, will put a Stop to their future Improvements, tho' it is great Pity it should ; for as to the bad Seasons, the Vineyards abroad have been equally exposed thereto ; nor has the Wine which they have produced the two last Seasons, been of much Value ; so that the Dealers in Wine in *England* have mixed it up with some of the strong Wines of former Years Growth, in order to render it saleable. And with regard to the ill Success which People have had, who have planted Vineyards, that is entirely owing to their not having followed the Directions exhibited in the former Volumes of the *Dictionary*, either in the Choice of Soil and Situation, the Sorts of Grapes, the Distance which should be allowed to them, or the Method of pruning and managing them. In every of these Articles, I am convinced from several late Trials, there is no Reason to make the least Alteration. And as to what farther Observations I have made, in the Business of pressing, making and keeping of Wines, those shall be inserted under the Article *Wine*.

ULMARIA, Meadow-sweet, or Queen of the Meadow.

The Characters are ;

It hath a Flower composed of several Leaves, which are placed in a circular Order, and expand in form of a Rose ; out of whose Empalement rises the Pointal, which afterward becomes a Fruit, composed of many little membranaceous crooked Husks, gathered into a Head, each of which generally contains one Seed.

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The Species are ;

1. ULMARIA. *Clus. Hist.* Meadow-sweet.

2. ULMARIA *flore pleno. Jussieu.* Meadow-sweet with a double Flower.

3. ULMARIA *foliis ex luteo variegatis.* Meadow-sweet with Leaves variegated with Yellow.

The first Sort grows wild in moist Meadows in most Parts of *England*, and flowers the Beginning of *June*, when it makes a fine Appearance amongst the Grass. It also grows plentifully on the Sides of Ditches and Rivers, where, as it is not often mowed down, it continues much longer in Beauty, and the Stalks rise to a greater Height. The Flowers which are produced on the Tops of the Stalks, in form of an Umbel, are white, and smell very sweet. These, as also the Leaves and Roots, are used in Medicine. This Plant is esteemed to be cooling, drying and binding ; and also is sudorific and alexipharmic. The Preparations of this Plant are, the distilled Water of the Flowers and Leaves, and the Extract, which is by some much commended. The Flowers give an agreeable Flavour to Wine, and are sometimes used to add a Flavour to strong *Spanish* Wines, like that of the *Malvatic* Wine, which is made in the Island of *Candy*. These Flowers are proper to place in Basons to adorn Halls and Chambers ; because they are of an agreeable Sweetness, which doth not offend the Head.

This Plant is seldom planted in Gardens, being so commonly found wild in the Fields ; but in low moist Places in large Gardens, if some of these Plants were placed, they would afford an agreeable Variety ; and in such Places few other Plants, which are more valuable, will thrive.

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The second Sort deserves a Place in every good Garden, for the sake of its fine double Flowers, which continue in Beauty a long time. This doth not differ from the common Sort in any thing, excepting that the Flowers are very double and large; so that when it is planted on a moist Soil, or is duly watered in dry Weather, it makes a fine Appearance for at least a Month, or in a cool Season near six Weeks; and as the Flowers have an agreeable Sweetness, they are a fine Ornament in Basons to place in Rooms.

These Plants are propagated by parting of their Roots, which should be done in Autumn, that they may be well rooted before the dry Weather comes on in the Spring, otherwise they will not flower very strong the following Summer. These Roots need not be parted oftener than every other Year, and then they should not be parted into small Heads; for as the Beauty of this Plant is to have many Stems of Flowers, so when the Roots are divided too much, there will be very few Stems produced, and consequently the Plants will make but a mean Appearance.

Where these Plants are placed in moist shady Borders, intermixed with other flowering Plants, they should be allowed good Room; for as their Roots spread pretty far in the Ground, so when they have but little Room, they will starve in Summer, unless they are plentifully watered, and the Soil be very good in which they are planted; for where-ever their Roots intermix with those of other Plants, there will be a great Struggle for the Mastery, and thereby both Sorts will be rendered weak: so that these should be planted two Feet asunder, and as much from any other

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Plants; and this will be room enough to dig the Ground between the Plants, which should always be carefully done those Years when the Plants are not removed; which will encourage the Roots, and cause them to flower very strong.

The Sort with strip'd Leaves is also preserved in some Gardens for the sake of Variety. This may be propagated by parting of the Roots in the same manner as the former Sort; but this must not have a rich Soil, for that will cause it to run plain.

ULMUS, The Elm-tree.

To this Article must be added;

1. *ULMUS minor, folio angusto glabro.* The smooth narrow-leav'd Elm, by some called the Upright narrow-leav'd Elm.

2. *ULMUS folio lato scabro, cortice cinereo glabro.* The white-bark'd Elm, by some called the smooth Witch Elm, and by others, the Irish Elm.

3. *ULMUS folio lato scabro, angustis samarris.* The French Elm.

There are some other Varieties of the Elm, which differ so little from the Sorts enumerated in this and the former Volumes of the Dictionary, as scarcely to be distinguished; wherefore it will be needless to mention them, because they are not so proper to make Plantations, as the other more common Sorts.

The first of these Sorts is very common in some Parts of Hertfordshire, and in Cambridgeshire, where there is scarce any other Sort of Elm to be seen. This makes a very handsome upright Tree, and retains its Leaves as late in the Autumn, as the common small-leav'd Elm, which is called the English Elm by the Nursery-men near London.

The second Sort is by some Persons preferr'd to most others, for the free

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free Growth, and its retaining the Leaves longer than any other Sort. The Bark of this Tree is very smooth, and of an Ash-colour; the Leaves are of a lively Colour, and the Growth of the Tree is very regular and upright.

The third Sort is not so much esteemed as either of the former; but it being a very hardy Kind, will grow in such Soils, where the former will not, for which some Persons cultivate it; tho' I think neither this nor the *Dutch Elm* worth planting, because when they are arrived to a considerable Size, they make a most detestable Appearance: their Branches growing very struggling, which have a thick rugged Bark, and their Leaves being very thinly placed on them, they look very disagreeable; and the Leaves of both these Sorts fall sooner in Autumn, than those of the common Elm.

These may be propagated in the same manner as the common Sorts, for which there are full Instructions exhibited in the former Volumes of the *Gardeners Dictionary*; wherefore I shall not repeat them here.

URTICA, Nettle.

To this Article should be added;

1. *URTICA maxima racemosa Canadensis*. H. R. Par. The greatest branching Nettle of *Canada*.

2. *URTICA Canadensis, myrrhidis folio*. Inst. R. H. *Canada* Nettle, with a Leaf of Sweet Cicely.

3. *URTICA racemosa Americana, amplo coryli folio*. Plum. Cat. Branching *American* Nettle, with a large Hazel-leaf.

4. *URTICA racemifera maxima Sinarum, foliis subtus argenteis lanugine-villosis*. Pluk. *Amalth*. Greatest branching Nettle of *China*, with Leaves which are white and woolly underneath.

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The first of these Plants is very common in many *English* Gardens, where it is preserved more for the sake of Variety, than for any Beauty it hath. This hath an abiding Root, which sends forth a great Number of Shoots every Spring, which rise about three Feet high, and form a thick Tuft or Bush, which continues green till the Autumn, when the Shoots decay to the Root. This may be propagated by parting of the Root in the Spring, and may be planted in almost any Soil or Situation, and will endure the severest Cold of this Climate in the open Air.

The second Sort is also preserved in some curious Gardens, for the sake of Variety. The Leaves of this Plant are finely cut and jagged into many Parts, in some manner resembling those of Sweet Cicely. This is also a very hardy Plant, and may be treated as the former.

The third Sort was discovered by Father *Plumier* in *America*. This being more impatient of Cold than the other, should be planted in Pots, and placed in Shelter in the Winter Season, otherwise it will not live in this Country. But as it is a Plant of little Beauty, it is only preserved by some curious Persons for Variety.

The fourth Sort retains its Leaves all the Winter, which are very large and hoary underneath, but make an agreeable Variety in the Green-house, in the Winter Season. The Stems of this Plant rise four Feet high or more; and these often branch out, at the Top, into Side-shoots; and the Flowers (which are like those of the common Nettle) are produced from the Wings of the Leaves. This Sort is too tender to live in the open Air in Winter; wherefore the Plants should be potted, and in Au-

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tumn removed into the Green-house; where, if they are secured from the Frost, and frequently refreshed with Water, they will thrive extremely well. In Summer they may be placed abroad in a sheltered Situation, and in dry Weather they must be plentifully watered; for they are very thirsty Plants. This may also be propagated by parting of the Roots, which should be done in May, when they are removed out of the Green-house; for at that Season this Plant is in its least Vigour, the Winter being the Time when it is most flourishing. The Seeds of this Plant were brought from China, where the Plant is called *Peama*.

UVA URSI, The Spanish Red-whort.

The Characters are;

It hath a globular bell-shaped Flower, consisting of one Leaf, from whose Empalement arises the Pointal, fixed like a Nail in the hinder Part of the Flower; which afterward becomes a soft Berry or Fruit of a spherical Form, inclosing hard Seeds, which are some plain, and others gibbous.

There is but one Species of this Plant at present known; viz.

UVA URSI. *Clus. Hist. Spanish* Red-whort.

This Plant is very near a-kin to our common Whorts or Bilberries; it rises about a Foot high, and hath several flexible Branches, which are covered with a reddish Bark, somewhat like the young Branches of the Strawberry-tree: these are thinly beset with oblong stiff green Leaves, which are serrated on their Edges. The Flowers grow on the Top of the Branches, which are of a whitish bluish Colour; these are succeeded by red Berries, somewhat larger than those of our common Whorts, which have an acid Taste.

This Plant must be treated in the same manner as our *Vitis Idæa*, or Bilberry; which is to procure the Plants with Balls of Earth to their Roots, from the Place of its native Growth; because the Seeds often fail, and when they do succeed, it will be a long time before the Plants will grow to any Size; but as there are Directions for the Management of these Plants exhibited in the former Volumes of the *Dictionary*, under the Article of *Vitis Idæa*, I shall not repeat them in this Place.

VULNERARIA, Woundwort.

The Characters are;

It hath a papilionaceous (or Pea-bloom) Flower, out of whose tubular and turgid Empalement arises the Pointal, which afterward becomes a short Pod filled with roundish Seeds. To these Notes must be added, That the Pod is inclosed in a membranous Bladder, which was before the Empalement.

The Species are;

1. VULNERARIA *rustica*. J. B. Rustic Woundwort, Kidney Vetch, or Ladies Finger.

2. VULNERARIA *rustica*, flore albo. *Inst. R. H.* Rustic Woundwort, with a white Flower.

3. VULNERARIA flore purpurascens. *Inst. R. H.* Rustic Woundwort, with a purplish Flower.

4. VULNERARIA *pentaphyllos*. *Inst. R. H.* Five-leav'd Woundwort.

5. VULNERARIA *Cretica*, flore parvo vario. *Tourn. Cor.* Candy Woundwort, with a small variable Flower.

The first Sort grows wild on poor chalky Ground in divers Parts of England, but is rarely cultivated in Gardens. This sends forth several Stalks from the Root, which are about eight or nine Inches long, beset with hairy Leaves alternately, which are composed of four or five Pair

Pair of Lobes, terminated with an odd one. On the Top of the Stalks the Flowers are produced, which are small, and of a yellow Colour, collected together in a broad Head, which are succeeded by short Pods filled with roundish Seeds. This Plant flowers toward the End of May, and the Seeds are ripe in July.

The second Sort is a Variety of the first, from which it only differs in the Colour of its Flowers, which are white.

The third Sort is found wild in some Parts of *Wales*, from whence the Seeds and Plants have been procured by some curious Botanists, who preserve them in their Gardens. This Sort produces pretty purplish Flowers, collected into Heads, which make an agreeable Appearance.

The fourth Sort is found wild in *Italy*, *Sicily*, and some other warm Countries; but in *England* it is preserved in some curious Gardens for the sake of Variety. This is an annual Plant, which perishes with the first Approach of Winter. The Seeds of this Plant should be sown about the Middle of *March*, on a Bed of light Earth, in an open Situation, where they are designed to remain, because the Plants do not very well bear transplanting. Therefore the best Method is, to sow the Seeds in small Drills, made two Feet asunder; and when the Plants are come up, they should be thinned where they are too close, so as to leave them six or eight Inches asunder in the Rows, and then keep the Ground clean from Weeds, which is all the Culture they require. The Branches of this Plant spread flat on the Ground, and the Flowers are produced in large Bladders from the Wings of the Leaves. These ap-

pear in *June*, and the Seeds will ripen the End of *August*.

If some of these Seeds are sown, the Beginning of *September*, on a warm dry Border, the Plants will come up in Autumn, and live thro' the Winter, (provided it is not very severe) and will flower early the following Summer, whereby good Seeds may be obtained; for when the Summers prove cold and wet, those Plants which come up from Seeds sown in the Spring, do not produce ripe Seeds, so that the *Species* may be lost, where there are not autumnal Plants.

The fifth Sort was discovered by Dr. *Tournefort* in the Island of *Candy*, from whence he sent the Seeds to the Royal Garden at *Paris*. This is also an annual Plant; wherefore it should be managed in the same manner as hath been directed for the former Sort.

The first, second and third Sorts, will abide two, and sometimes three Years, before their Roots decay; tho' they generally are in the greatest Vigour the second Year, for these rarely flower the same Year they are sown. The surest Method to have these Plants succeed in a Garden, is to sow their Seeds in the Autumn as soon as they are ripe, on a Bed or Border of poor, dry, gravelly or chalky Soil, on which they will thrive much better than on a rich garden Earth. When the Plants are come up, they should be thinned, leaving them six or eight Inches asunder; and afterward, if they are kept clear from Weeds, they will require no farther Care.

The first Sort was formerly much used by the *Germans*, as a Wound-herb, from whence it obtained its Name; but at present it is not in any Use.

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WALKS.

In the former Volumes of the *Dictionary*, I have given Directions for the making and keeping of Gravel and Grass-walks; to which I shall here add something relating to Sand-walks, which are now very frequently made in Gardens, as being less expensive in the making, and also in keeping, than either of the former; and in very large irregular Gardens, which are such as most Persons now esteem, this is a very great Article: for as the greatest Part of the Walks which are made in Gardens, twist about in an irregular manner, it would be very difficult to keep them handsome, if they were laid with Gravel. And as these Walks are for the most part shaded by Trees; the dripping of the Water from their Branches in hard Rains, would wash the Gravel in Holes, and render the Walks very unsightly. When these Wood-walks are Grass, they do not appear sightly, nor are they very proper for walking on; for after Rain they continue damp so long, that they become unhealthy to walk on; and the Grass generally grows spiry and weak for want of Air; and by the continual dropping of the Trees, will by degrees be destroyed. Therefore it is much better to lay these Walks with Sand, which will be dry and wholesome; and whenever they appear mossy, or any Weeds begin to grow on them, if they are shovelled with a *Dutch Hough* in dry Weather, and then raked over, it will destroy the Weeds and Moss, and make the

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Walks appear as fresh and handsome as if they had been new-laid.

Grass-walks of late Years have been very little esteemed, because they are so unfit for walking on; for in a Morning there is commonly a great Dew upon the Grass, as there is also late in the Evening, and after Rain they continue moist a long time; so that it is only in the middle of the Day that these Walks can be used, which is a Time few Persons care to be in a Garden: and at most times there remains a Dampness, which frequently occasions Colds to such Persons as are tender; wherefore they are with good Reason disused at present. Besides, these Walks are not very beautiful, there being little Pleasure in viewing long narrow Slips of Grass, which is what most Grass-walks must be termed, being bounded either with Gravel or Borders on the Sides. And Grass never appears so beautiful, as when it is disposed into large irregular Pieces, and bounded with Trees.

Gravel-walks are very necessary near the House, because they are soon dry after Rain, and are proper for walking on, in all Seasons. But then these should be but few, and those ought to be large and magnificent, proportionable to the Grandeur of the House and Garden. The principal of these Walks should be elevated parallel with the House, so as to form a Terrace; this should extend itself each way, in proportion to the Width of the Garden; so that from this there may be a Communication with the Sand-walks, without going on the Grass; or there should be two Side-walks of Gravel to lead to them, so that there may be a dry Walk continued quite thro' the Gardens. But there is not a more ridiculous Sight, than that of a strait Gravel-walk, leading to the Front of

the House, intersecting the Grass, so as to cause it to appear like the stiff formal Grass-plots, frequently made in little Court-yards by Persons of low Taste.

In the modern way of laying out Gardens, the Walks are carried thro' Woods and Plantations, so that these are shady and convenient for walking in the middle of the Day. These are usually carried about, winding as much as the Ground will admit, so as to leave a sufficient Thickness of Wood, to make the Walks private; and that the Persons who are walking in one Part of them, may not be seen by those who are in any of the other Parts. Where these Walks are contrived with Judgment, a small Extent of Ground will admit of a great many Turns; so that a Person may walk some Miles in a small Garden. But these Turns should be made as natural as possible, so as not to appear too much like a Work of Art, which will never please so long as the former.

The Breadth of these Walks must be proportioned to the Size of the Ground, which in a large Extent may be twelve or fourteen Feet wide, but in small Gardens five or six Feet will be sufficient. There are some Persons who allow a much greater Breadth to their Walks, than what I have assigned to the largest Gardens; but as these Walks are supposed to be shaded by Trees, so when they are made too broad, the Trees must be planted close to the Sides of the Walks; and then it will be a long time before they will afford a sufficient Shade, if the Trees are young. Therefore I imagine, the Width here allowed will by most People be thought sufficient, especially as the Walks are designed to wind as much as the Ground will allow, because the wider they are,

the greater must be the Turns; otherwise the Walks will not be private for any small Distance. Besides, as it will be proper to line the Sides of these Walks with Honey-suckles, Sweetbrier, Roses, and many other sweet-flowering Shrubs; the tall Trees should be placed four or five Feet from the Walk, to allow room for these. But as I shall particularly treat of the Method of laying out Wilderesses, and planting of them, in such a manner as to render them as nearly resembling a natural Wood as possible, under its proper Head; I shall add nothing more in this Place, except a few common Directions for making of these Sand-walks.

When the Ground is traced out in the manner as the Walks are designed, the Earth should be taken out of the Walks, and laid in the Quarters. The Depth of this must be proportion'd to the Nature of the Soil; for where the Ground is dry, the Walks need not be elevated much above the Quarters; wherefore the Earth should be taken out four or five Inches deep in such Places; but where the Ground is wet, the Bottom of the Walks need not be more than two Inches below the Surface, that the Walks may be raised so high, as to throw off the Wet into the Quarters; which will render them more dry and healthy to walk on.

After the Earth is taken out to the intended Depth, the Bottom of the Walks should be laid with Rubbish, coarse Gravel, or whatever of the like Nature can be most readily procured. This should be laid three or four Inches thick, and beaten down as close as possible, to prevent the Worms from working thro' it; then the Sand should be laid on about three Inches thick; and after treading it

it down as close as possible, it should be raked over, to level and smooth the Surface. In doing of this, the Whole should be laid a little rounding to throw off the Wet: but there will be no Necessity of observing any Exactness therein; for as the whole Ground is to have as little Appearance of Art as possible, the Rounding of these Walks should be as natural, and only so contrived, as that the Water may have free Passage off them.

The Sand with which these Walks are laid, should be such as will bind; otherwise it will be very troublesome to walk on them in dry Weather; for if the Sand be of a loose Nature, it will be moved with strong Gales of Wind, and in dry Weather will slide from under the Feet. If after these Walks are laid, they are well rolled two or three times, it will settle them, and cause them to be firm. If the Sand is too much inclinable to Loam, it will also be attended with as ill Consequence, as that which is too loose: for this will stick to the Feet after every Rain; so that where Sand can be obtained of a middle Nature, it should always be preferred.

In some Countries where, Sand cannot be easily procured, these Walks may be laid with Sea-shells well-pounded, so as to reduce them to a Powder, which will bind extremely well, provided they are now-and-then rolled. But where neither of these can be easily procured, Sea-coal Ashes, or whatever else can be gotten, which will bind and be dry to the Feet, may be used for this Purpose. And where any of these can only be had in small Quantities, the Walks should have a greater Share of Rubbish laid in their Bottom, and these spread thinly over them; and in most Places Rubbish,

rough Stones, or coarse Gravel, may be easily procured.

WALLS.

In the building of Walls to accelerate the Ripening of Fruits, there have been many Contrivances for obtaining the greatest Warmth from the Sun; such as inclining the Walls to the Horizon, that the Rays may fall more directly upon them. Others have built Walls in Semicircles, thinking thereby to collect the Force of the Sun's Rays, and by this means to reflect them from one Side of the Half-circle to the other: and there are some who have built their Walls in Angles for the same Purpose. But neither of these Contrivances have succeeded according to the Expectations of the Persons who have practised them; for their Fruits have not ripened so well against either of these Walls, as against such as have been plain. For as to those Walls which are built inclining to the Horizon, tho' they have the Rays of the Sun almost perpendicular in the middle of the Day; yet in the Mornings and Evenings, the Rays fall more oblique on these Walls, than on those which are upright. And it is not the greatest Force of the Sun's Rays, in the middle of the Day, which is of so much Service to Fruits, as the long Continuance of the Sun on the Wall, or its strongest Force in the Morning to dry the Dew from off the Trees; for in the middle of the Day, when the Sun is greatly advanced above the Horizon, and the Air thoroughly warmed by his Influence, there will need no additional Heat to forward the Growth of the Fruit, and to ripen it in Perfection; because wherever the Fruit is exposed too much to the Sun by the want of Leaves to shade it, and these Fruit happen to lie close to the Wall, as is sometimes

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the Case, they are never so fair or well-tasted, as those which are screen'd from the Sun by Leaves: for the violent Heat of the Sun in the middle of the Day, in very hot Weather, will cause many Fruits, which are too much exposed, to be mealy before they are ripe. And these inclining Walls are greatly exposed to hoary Frosts in Spring and Autumn, which are very destructive to Fruits, as also to Rain, Hail, &c. and the Dampness will remain a considerable time longer on these sloping Walls, than on those which are upright; so that these sloping Walls are by no means proper for Fruit.

As to those Walls which are built in Half-circles, or those in Angles, they are also bad; for the Wind, being drawn into the Areas of them, is reverberated from Side to Side, which renders the Air about the Fruit much colder than any in the Neighbourhood; wherefore instead of forwarding the Ripening of the Fruit, as they were intended, the Fruit will be much later ripe than against plain Walls built to the same Aspect, as I have several times observed; so that from all the several Trials which have yet been made of different-shaped Walls, it appears there are none so proper for Fruit as those which are built plain; and as these are also the least Expence to build, they should always be preferr'd.

According to the modern Taste in Gardening, there are very few Walls built round Gardens; which is certainly very right, not only with regard to the Pleasure of viewing the neighbouring Country from the Garden, but also in regard to the Expence, 1. of building these Walls; and, 2. if they are planted with Fruit, as is frequently practised, to maintain them will be a constant Charge, without receiving much

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Profit or Pleasure. For when there is too much Walling planted with Fruit-trees, they are seldom taken much care of; so that the Quantity of Fruit produced will be small, and that ill-nourished and bad-tasted. Therefore the Quantity of Walling should be proportioned to the Fruit consumed in the Family. But as it will be necessary to inclose the Kitchen-garden, for the Security of the Plants, so, if that be walled round, it will contain as much Fruit as will be wanted in the Family; because the Kitchen-garden is always proportioned to the Number of Persons maintained. And as the Kitchen-garden should always be placed out of Sight from the House, the Walls may be hid by Plantations of Trees, at some little Distance, which will be of Use in sheltering of the Fruit.

The best Aspect for Walls, in *England*, is to have one Point to the Eastward of the South; for these will enjoy the Benefit of the morning Sun, and will be less exposed to the West and South-west Winds, (which are very injurious to Fruit in *England*) than those Walls which are built due South. I know there are many Persons who object to the turning of Walls the least Point to the East, on account of the Blights which they say come from the East in the Spring. But from many Years Experience and Observation, I can affirm, that Blights as often attack those Walls which are open to the South-west, as those which are built to any other Aspect: and I believe, whoever will be at the Trouble to observe for seven Years, which aspected Walls suffer most from Blights, will find those which are built with a Point to the Eastward of the South, as seldom blighted as those which are turned to any other Aspect. Therefore, in the Contrivance

vance of a Kitchen-garden, there should be as great Length of these Walls built as the Situation of the Ground will admit.

The next best Aspect is due South, and the next to that South-east, which is preferable to the South-west, for the Reasons before assigned. But as there will for the most part be South-west and West Walls in every Garden, these may be planted with some Sorts of Fruit, which do not require so much Heat to ripen them, as those designed for the best Walls. But where-ever there are North Walls, it is hardly worth while to plant them with Fruit; because whatever Sorts of Fruit will ripen against them, will do much better in Espaliers, or on Standards.

Where Persons are very curious to have good Fruit, they erect a Trelase against their Walls, which projects about four Inches from them, to which they fasten their Trees; which is an excellent Method, because the Fruit will be always at a proper Distance from the Walls, so as not to be injured by them, and will have all the Advantage of their Heat. And by this Method the Walls will not be injured by driving Nails into their Joints, which by every Year being drawn out, will force the Mortar from between the Bricks, and thereby make Holes, in which Snails and other Vermin will harbour, and destroy the Fruit, and the Walls will be also greatly impaired.

These Trelases may be contrived according to the Sorts of Fruit which are planted against them. Those which are designed for Peaches, Nectarines, and Apricocks, (which for the most part produce their Fruit on the young Wood) should have their Rails three, or at most but four Inches asunder every way. But for

other Sorts of Fruit, which continue bearing on the old Wood, they may be five or six Inches apart; and those for Vines may be eight or nine Inches Distance. For as the Shoots of Vines are always trained at a much greater Distance than those of any other Sort of Fruit, the Trelases for these need not be near so close; especially as those must for Peaches and Nectarines, whose Shoots are generally shortened to about five or six Inches or less; so that, if the Rails are not pretty close, many of the short Branches cannot be fastened to them.

These Trelases may be made of any Sort of Timber, according to the Expence which the Owner is willing to bestow; but Fir is most commonly used for this Purpose, which if well dried and painted, will last many Years; but if a Person will go to the Expence of Oak, it will last sound much longer. And if any one is unwilling to be at the Expence of either, then a Trelase may be made of Ash-poles, in the same manner as is practised in making Espaliers, with this Difference only, that every fourth upright Rail or Post should be very strong, and fastened with iron Hooks to the Wall, which will support the Whole: and as these Rails must be laid much closer together, than is generally practised for Espaliers; these strong upright Rails or Posts will not be farther distant than three Feet from each other. To these the cross Rails which are laid horizontally should be well-nailed, which will secure them from being displaced, and also strengthen the Trelase; but to the other smaller upright Poles, they need only be fastened with Wire. To these Trelases the Shoots of the Trees should be fastened with Ozier-twigs, Rope-yarn, or any other

soft Bandage; for they must not be nailed to it, because that will decay the Woodwork.

These Trelases need not be erected until the Trees are well spread, and begin to bear Fruit plentifully; before which time the young Trees may be trained up against any ordinary low Espalier, made only of a few slender Ash-poles, or any other Sort of slender Sticks; by which Contrivance the Trelases will be new when the Trees come to Bearing, and will last many Years after the Trees have overspread them: whereas when they are made before the Trees are planted, they will be half decay'd before the Trees come to bearing Fruit.

Where these Trelases are intended to be made against new Walls, it will be proper to fasten some strong iron Hooks into the Wall as it is built, at the Distance which the upright Posts are intended to be placed; because when these are afterwards driven into the Wall, they displace the Mortar in the Joints, and injure the Wall.

In the building of the Walls round a Kitchen-garden, the Insides which are designed to be planted with Fruit-trees, should be made as plain as possible, so that the Piers should not project on those Sides above four Inches at most; and these should be placed about fourteen Feet asunder, in such Walls as are designed for Peach and Nectarine-trees, so that each Tree may be planted exactly in the Middle between the Piers, which will render them more sightly, and be better for the Trees. But where Apricocks, Plums or Cherries, are to be planted, the Piers may be only ten Feet asunder, and against every other Pier the Trees should be planted, which will allow them sufficient room to spread; and as the Trelase will project as forward as

the Piers, the Branches of the Trees may be trained on a Plain. But when the Piers do not project more on the Inside of the Garden, they should be built stronger on the Outside, for the better supporting of the Walls.

The usual Thickness which Garden Walls are allowed, if built with Bricks, is thirteen Inches, which is one Brick and a half: but this should be proportionable to the Height; for if they are all built fourteen Feet high or more, as is often practised, then the Foundations of the Walls should be at least two Bricks and a half thick, and brought up level to the Surface of the Ground, of the same Thickness; then they should be set off two Inches on each Side, which will reduce them to two Bricks; and four Feet above the Ground, they may be diminished on each Side, to reduce them to the Thickness of a Brick and half, which must be continued to the Top of the Walls. And the Piers in these high Walls should also be proportionably stronger than is commonly allow'd to lower Walls; for as these will be much more exposed to strong Gales of Wind, so if they are not well built, they will be in Danger of being blown down. Therefore the Piers of these Walls should be projected the Length of a Brick on their Backside, and the Thickness of a Brick on their Front; and if these are built about ten or twelve Feet asunder, they will greatly strengthen the Walls.

But there is no Necessity of building Walls higher than nine or ten Feet, unless it be for Pears, which, if properly managed, will spread over a great Compass of Walling; but as only some of the latest Winter-pears require the Assistance of a Wall, there need no more but that Part of the Wall, where these are designed,

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designed, to be built higher; for Peaches and Nectarines never require a Wall higher than nine or ten Feet, provided they are rightly managed; because whenever they are carried to a greater Height, the lower Part of the Wall is unfurnished with bearing Branches. And altho' Apricocks, Plums and Cherries, will frequently grow higher; yet if they are planted at a proper Distance, and the Branches trained horizontally from the Bottom, they will not soon cover a Wall of this Height. And Vines may be kept as low as any Sort of Fruit; for when they are planted against low Walls, they must be treated somewhat after the same manner as those in Vineyards, which is to cut out the greatest Part of the Wood which produced Fruit the preceding Year, and train in new Shoots for the next Year's Bearing, which are rarely left a Yard in Length, and will not require very high Walls.

If the Pears which are designed to be planted, are allowed a South-west Aspect, on which they will ripen very well; then the Wall to this Aspect should be built fourteen Feet high or more; for as these Trees spread very far, when on free Stocks, they should not be shortened and stopp'd in their Growth, which will prevent their Bearing, by causing them to send out a great Number of gross luxuriant Shoots, which will never produce Fruit. Therefore these should never be planted amongst other Sorts of Fruit-trees, which are of smaller Growth; because then the Walls must appear very unsightly, in having some Trees planted more than double the Distance which the others require; so that there is no other Sort of Fruit which requires the Assistance of Walls to ripen their Fruit, which need so

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great room for spreading as Pears, except it be Figs; a few Trees of which may be planted against the same Walls where there is room; tho' these may be planted against the Back-walls of Offices or Stables, where there is Conveniency, because this Fruit is seldom coveted by Servants; and being planted in Places which are much frequented, they will not be in so much Danger of being destroyed by Birds, as those which are in private Places. But I shall now proceed to give some Directions for the Building of Hot-walls, to promote the Ripening of Fruits, which is now pretty much practised in *England*.

In some Places these Walls are built at a very great Expence, and so contrived as to consume a great Quantity of Fuel; but where they are judiciously built, the first Expence will not be near so great, nor will the Charge of Fuel be very considerable; because there will be no Necessity of making Fires more than two Months, or at most ten Weeks, beginning about the Middle of *January*, and ending by the Beginning of *April*; when there will be no want of Fires, if the Glasses are close shut every Night, or in bad Weather; for half an Hour's Sun-shining on the Glasses at this Season, will sufficiently warm the Air inclosed in the Glasses, for the Growth of any of our *European* Fruits.

There are some Persons who plant Vines and other Fruit-trees by the Sides of Stoves, and draw some of their Branches into the Stove, in order to obtain early Fruit; but this is by no means right, because where the Stove is designed for the Ananas, the Air must be kept much warmer for them, than is required for any of the other Fruits, so that they can never do well together; for

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when there is a sufficient Quantity of Air admitted, to promote the Growth of the other Fruit, the Ananas are starved for want of a proper Heat; and so, on the contrary, when the Stove is kept up to the proper Heat for the Ananas, it will be too hot for Fruit. And it will also be proper to have the Vines on a particular Wall by themselves, because these require to have a greater Share of Air admitted to them when they begin to shoot, than is proper for Peaches or Nectarines; so that it is much the better Method to have them separate.

The ordinary Height of these Hot-walls is about ten Feet, which will be sufficient for any of those Sorts of Fruits which are generally forced; for by this the Trees are commonly weakened in their Growth, so that they will not grow so vigorously as those which are always exposed to the open Air; and where there is not a Quantity of Walling planted sufficient to let one Part rest every Year, the Trees will never be very healthy, and will last but a few Years. The Quantity of Walling to produce early Fruit for a middling Family, can't be less than eighty or one hundred Feet in Length; so that where a Person is desirous to have their Fruit in Perfection, and the Trees to continue in a good Condition many Years, there should be three times this Quantity of Walling built; so that by dividing it into three Parts, there will be two Years for the Trees to recover their Vigour between the Times of their being forced; whereby a greater Quantity of Bearing-wood may be obtained, and the Fruit will be fairer, and in larger Quantities, than when they are forced every Year, or every other Year; and as the Glasses may be contrived so as to move from

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one to the other, the Expence of building the Walls so much longer will not be vastly great, because the Frames and Glasses will be the same as for one Year's Fruit.

The Foundations of these Walls should be made four Bricks and a half thick, in order to support the Flues; otherwise, if Part of them rest on Brick-work, and the other Part on the Ground, they will settle unequally, and soon be out of Order; for where-ever there happen any Cracks in the Flues, thro' which the Smoak can make its Escape, it will prevent their Drawing; and if the Smoak gets within the Glasses, it will greatly injure the Fruit. This Thickness of Wall need not be continued more than six Inches above the Ground, where should be the Foundation of the first Flue; which will raise it above the Damps of the Earth: then the Walls may be set off four Inches on each Side, which will reduce it to the Thickness of three Bricks and a half, so that the Back-wall may be two Bricks thick, which is absolutely necessary to throw the Heat out more in Front; for when the Back-walls are built too thin, the Heat will escape thro' them. The Wall in Front next to the Fruit, should be only four Inches thick: whereby there will be an Allowance of nine Inches for the Flues, which may be covered with ten Inch Tiles; for if they have half an Inch Bearing on each Side, it will be sufficient.

The Ovens in which the Fires are made, must be contrived on the Backside of Walls, which should be in Number proportionable to the Length of the Walls. The Length usually allowed for each Fire to warm, is forty Feet, tho' they will do very well for fifty Feet: but I would not advise the Flues to be longer

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longer than this to each Fire; because when they are made too long, there is a Necessity of making the Fires so much stronger to warm them; which will occasion the Heat to be too violent near the Fires. These Ovens should be shedded over, to keep out the Wind and Rain, otherwise the Fires will not burn. Some People make these Sheds of Timber, but it is much better to build them of Brick, and tile them over; because the wooden Sheds will in a few Years decay, and afterwards will be a constant Charge to keep in Repair: and besides, they may be in Danger of firing, if great Care is not constantly taken of the Fires. As it is absolutely necessary to have the Ovens below the Foundation of the first Flues, there must be Steps down into the Sheds, to come to the Mouth of the Ovens to supply the Fewel. Therefore the Sheds should not be narrower than eight Feet in the clear; for as the Steps will require four Feet Space, there should be at least four Feet more for the Person who attends the Fire to have room to turn himself to clear out the Ashes, and to put in the Fewel. Where the Length of Walling requires two Ovens, it will be proper to have them in the Middle included in one Shed, which will save Expence, and allow more room to attend the Fires; for in this Case the Sheds must be at least ten Feet long, and then they need not be more than six in Breadth. The Steps down into these should be at one End, so that the Door opening into the Sheds, will not be opposite to the Mouths of the Ovens: therefore the Fires will burn more regularly; for whenever the Doors are contrived to front the Mouth of the Ovens, if the Wind sets directly against them, it will cause the Fire to burn too fiercely, and the Fewel will be soon consumed.

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These Ovens may be contrived in the same manner as those which are already described for Stoves: wherefore I shall not repeat it again in this Place; but must observe, that when the two Ovens are joined together, there should be a Partition-wall at least two Bricks thick between them, otherwise the Fires will soon destroy it; and if there should be the least Hole in the Wall, through which the Smoak of the two Fires can communicate, it will prevent their Drawing.

The lower Flue, thro' which the Smoak first passes from the Fire, may be two Feet and a half deep; the Back-wall should therefore be continued two Bricks thick as high as to the Top of this Flue; and then it may be set off to a Brick and half Thickness, which must be continued to the Top of the Wall. The second Flue, which should return over the first, may be made two Feet deep, the third a Foot and half, and the fourth one Foot deep; which four Flues, with their Coverings, will rise near eight Feet in Height; so that there will be about two Feet left for the fixing of the Frames at the Top to support the Glasses, and for coping the Wall. And these four Returns will be sufficient to warm the Air in the Frames; for the Smoak will have lost its Heat by the time it has passed thus far.

In the carrying up of these Walls, there should be some strong iron Hooks fastened at convenient Distances, which should project about three Inches from the Wall, to which the Trelase must be fastened, which is to support the Trees. These Hooks should be long enough to fasten into the Back-wall; for the Wall in Front, being but four Inches thick, will not be strong enough to support the Trelase. But in placing
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of them, Care should be had not to lay them cross the Middle of the Flues, because they would obstruct the Clearing the Flues of Soot, whenever there should be Occasion. So that the best way is to lay them just under the Tiles which cover each Flue, at about three Feet asunder, which will be near enough, provided the Hooks are made sufficiently strong. As the Flues must be well plastered with Loam on their Inside; so also should the Loam be spread under the Tiles which cover them to the Thickness of the Hooks, that the Flues may be very smooth; otherwise the Soot will hang to the iron Hooks, and stop the Smoak from passing. It will also be very proper to cover these Flues on the Side next the Trelase with Hop-bags, or some such coarse Cloth, in the same manner as hath been directed for the Stoves; which will make them so tight, that no Smoak will find its Way, which, without this Covering, it is very apt to do, thro' the Joints of Walls; especially when they are so thin as these must be built. And this Covering will also strengthen the Wall of the Flues, and join the whole Work together. If at each End of these Flues, there are small Arches turned in the Back-walls, in such a manner that there may be Holes opened to clean the Flues of Soot, whenever there is a Necessity for it, the Trouble will be much less than to open the Flues in Front; and there will be no Damage done to the Trees, nor will the Flues be the least injured by this, which they must be, when they are opened in Front.

The Borders in Front of these Hot-walls should be about five Feet wide, which will make a sufficient Declivity for the sloping Glasses;

and in these Borders there may be a Row of dwarf Pease planted to come early, or a Row of dwarf Kidney-beans, either of which will do very well; and if they are not planted too near the Trees, will not do them any Injury. On the Outside of these Borders should be low Walls erected, which should rise about an Inch or two above the Level of the Borders; upon which the Plate of Timber should be laid, whereon the sloping Glasses are to rest. And this Wall will keep up the Earth of the Border, as also preserve the Wood from rotting.

The Glasses which are designed to cover these Walls, must be divided into two Ranges; for as they must reach from the Ground-plate (just above the Level of the Border) to almost the Top of the Wall, they will be near twelve Feet long; which will be too great Length for single Frames, which, when they are more than six Feet long, are too heavy to move, especially if the Frames are made of a proper Strength to sustain the Glass. These Frames should be contrived in such manner, as that the upper Row may slide down; and by making on one Side three small Holes in the Woodwork which supports the Frames, at about a Foot Distance, and having a small iron Pin to fix into them, the top Glasses may be let down one Foot, two Feet, or three Feet, according as there may be Occasion. The lower Row of Glasses may be contrived so as to take easily out: but as they must lie sloping, and the upper Row must bear on them, they cannot be contrived to slide upwards, nor indeed will there be any Occasion of their Moving, because it is much better to let the Air in at the Top, than in the Front of the Trees.

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The sloping Timbers which are to support the Glafs-frames, must be fastened at Bottom, into the Ground-plate in the Front of the Border, and at the Top into strong iron Cramps fixed in the upper Part of the Wall for that Purpose. These Timbers should be made of Fir, which will not twist as Oak and some other Wood will, where it is laid in such Position. They must be made substantial, otherwise they will not last many Years, especially as they are designed to be moveable. On the Top of these should be fixed a strong Board, under which the upper Row of Glasses should run. The Use of this Board is to secure the upper Part of the Glasses from being raised by the Winds, and also to keep the Wet from getting to the Trees. Therefore it should be joined as close as possible to the Wall, and should project about two Inches over the Glafs-frames; which will be enough to throw the Wet on the Glasses, and likewise to secure them fast down.

The Breadth of these Frames for the Glasses may be about three Feet, or a little more, according as the Divisions of the Length of the Wall will admit; for a small matter in their Width is of no Consequence, provided they are not too wide to be easily moved; for when they are wider than a Man can easily reach with his Arms to manage, they will be very troublesome to carry from one Place to another. The Bars of these Frames which are to support the Glafs, should be placed lengthwise of the Frames; for when they are placed across, they stop the Moisture which is lodged on the Inside of the Glasses, and cause it to fall in Drops on the Border at every Bar; which will be very injurious to any Plants which are put there,

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and if it falls on the Trees, will greatly damage them, especially when they are in Blossom. The Lead into which the Glasses of these Frames are fixed, should be very broad, and the Joints well cemented; otherwise, the Wet will find an easy Passage through, and do great Damage to the Fruit.

At each End of the Range of Glasses, there will be an angular Space between the Glasses and the Wall, which must be closely stopped to prevent the Air from getting in, which might greatly injure the Fruit. These are by some Persons closely boarded up; but if they are closed with Glasses, so contrived as to open to let in Air at proper times, it will be of great Advantage; because, when the Wind may be too strong against the Front-glasses, one or both of these End-glasses may be opened, according to the Warmth of the Air inclosed; which will be often very useful to cool the Air, and to admit a small Quantity of fresh Air to the Fruit.

The Sorts of Fruit which are usually planted for Forcing, are Cherries, Plums, Peaches, Apricocks and Nectarines. As for the Vines, I would propose they should be planted by themselves against a particular Wall; for as they will require more Air to be admitted to them when they begin to shoot, than any of the above-mentioned Fruits, they will not all succeed, if they are included in the same Frame. As to the others, they will do very well in the same Border, and will require the same Temperature of Warmth. The best of these Sorts to plant against these Hot-walls, are those here mentioned.

Cherries.

The Early May, and May Duke.

Plums.

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Plums.

The Jean Hative, or White Primordian.

The Early Black Damask, or Morocco.

The great Damask Violet of Tours.
The Drap d'Or.

Peaches.

The Red Nutmeg.

The Red Magdalain.

The Montauban.

Nectarines.

Fairchild's Early Nutmeg.

The Elruge.

Apricock.

The Masculine.

These being the Sorts which ripen early, are the most proper to plant against these Walls, although they are not so valuable as some other Sorts of these Fruits: yet as they ripen naturally three Weeks or a Month earlier in the Season, they will be very early ripe, when they are brought forward by artificial Warmth.

In the preparing of the Borders for planting of these Fruit-trees, there should be the same Care taken, as for those against open Borders; which being fully treated in the former Volumes of the *Gardeners Dictionary*, I shall not repeat here. There must also be the same Care in training up of the Trees, when they shoot; but the Trelases need not be made against these Walls, until the Trees are grown large enough to spread, and produce a Quantity of Fruit; till which time they may be supported by any low ordinary Trelase, which will do very well till the time that the Trees will have Strength enough to force, which will not be until the fourth or fifth Year after planting, according to the Progress they have made; for if they are forced too young, it will weaken them so much, as that they seldom

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make vigorous Trees afterwards. Besides, the Quantity of Fruit which such young Trees produce, is not worth the Expence and Trouble of Forcing: for the Quantity of Fuel used, and the Trouble, will be the same for small Trees, which are not capable of producing more than six or eight Fruit each, as for those Trees which may produce three or four dozen. So that the greater time the Trees have to grow before they are forced, the better they will pay for the Trouble and Expence.

But it will be the best way not to have any of the Frames made, nor the Trelase or any other of the Woodwork, until the Trees are strong enough to force: for if these are done when the Walls are first built, as is by some Persons practised, they will be half decayed, before there is any Use for them. But then the Persons who are employed in making of the Trelase, must be very careful, in putting of it up, not to injure the Trees.

When the Trees have acquired Strength enough to produce a Quantity of Fruit, that Part which is designed to be forced the following Spring, should be carefully pruned at *Michaelmas*; when the very weak Shoots must either be intirely cut out, or pruned very short, because these, by being forced, will for the most part decay; and tho' some of them may be full of Flower-buds, yet these Shoots being weak, cannot nourish them; so that the Flowers having exhausted all the Sap, the Shoots die soon after, and rarely produce any Fruit. The other more vigorous Shoots should also be shortened to a proper Length, after the same manner as is directed for those Trees in the open Air; with this Difference only, *viz.* That these which are designed for Forcing, should not have their

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their Shoots left so long, because the Forcing of them will weaken them ; and so consequently, should there be as great a Length of Branches, there will probably be a greater Number of Fruit on them ; because, as these will be screened from the open Air, they will not be liable to Blasts ; and the having too many Fruit on the Trees, will render them small, and also weaken the Trees too much. Then the Shoots should be all regularly fastened to the Trelase, at a proper Distance from each other, so that when the Branches shoot the following Spring, they may not overhang each other. The Reason for my advising these Trees to be pruned so early in the Season, is, that those Branches which are left on, may enjoy the whole Nourishment of the Sap ; so that the Buds will become very turgid during the Winter Season, and will be prepared to open when the Fires are set to work.

The Time for beginning to make the Fires, is about the Middle or latter End of *January*, according as the Season is more or less favourable ; for if the Trees are forced too early into Flower, they will be in some Danger of miscarrying, if the Weather should prove severe ; so that it is by much the surest Method to begin about the time here directed, because there will be a Necessity of admitting fresh Air to the Trees when they are in Flower ; which cannot be done with Safety, when they flower in very bad Weather. And those Trees which are forced into Flower by the Beginning of *February*, will ripen their Fruit as early as most People will desire to eat them ; for the Cherries will ripen early in *April*, and the Apricocks by the Beginning of *May* ; and soon after, the Plums, Peaches and Nectarines will be ripe.

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There are some Persons who plant Strawberries in their Borders before their Fruit-trees, in order to have early Fruit, which often succeed very well : but where-ever this is practised, great Care should be taken to keep them from spreading over the Border, because these Plants will exhaust the principal Goodness of the Earth, and thereby injure the Trees ; so that when it is designed to have Strawberries in these Borders, I would advise, that the Roots should be either planted in Pots, or singly at a good Distance on a shady Border of loamy Earth, one Year before they are designed to be forced ; during which time the Runners should be diligently pulled off, to encourage the main Roots for Fruiting ; and at *Michaelmas* these Plants may be transplanted, with large Balls of Earth to their Roots, into the Borders before the Fruit-trees which are to be forced the following Spring, so that they may have time to get new Root before that Season ; and if these Plants are carefully watered when they begin to shew their Flower-buds, they will produce a good Quantity of Fruit, which will ripen the latter End of *April*, or the Beginning of *May*. But then I would also advise, that these Plants be taken away as soon as they have done Bearing, that they may not rob the Trees of their Nourishment.

Since I have mentioned this Method of having early Strawberries, I shall take the Liberty to insert another Method, which is often practised to obtain this Fruit early in the Spring, though it doth not so properly come under this Article ; which is, to train up the Plants either in Pots or Borders, after the manner before directed, for at least one Year or more ; then about the Beginning of *February*, there should be a moderate

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rate Hot-bed prepared, in Length proportionable to the Number of Plants designed to be forced; and the Breadth should be proportionable to the Width of the Frames which are designed to cover them. These Frames may be such as are used for common Hot-beds, to raise early Cucumbers, &c. This Hot-bed must be covered with fresh loamy Earth about eight Inches thick, into which the Strawberry Plants should be placed, with large Balls of Earth to their Roots, as close as they can conveniently be planted (for as they must be kept clear from Runners, they will not spread much during the time they remain in the Bed, which will be no longer, than until their Fruit is gone). Then they should be gently watered to settle the Earth to their Roots, which must be frequently repeated as the Earth becomes dry, otherwise they will produce but few Fruit. While the Nights continue cold, the Glasses of the Hot-bed should be covered with Mats, to preserve a kindly Warmth in the Beds; but in the Day-time, when the Weather is favourable, the Glasses should be raised to admit fresh Air to the Plants; for if they are too much drawn, (especially when they begin to flower) they will not produce much Fruit. If the Season should continue long cold, and the Heat of the Beds should decline, it will be proper to lay some fresh Hot-dung round the Sides of the Beds to renew their Heat, being always careful not to make them too hot; for that will scorch their Roots, and prevent their Fruiting. If the Plants which are planted in these Beds are strong, and in a good Condition for Bearing; and Care be taken in transplanting of them to preserve good Balls of Earth to their Roots, as also to keep a due Temperature of

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Warmth in the Beds; they will produce ripe Fruit by the End of *April*, or the Beginning of *May*, in Plenty; and will continue bearing, until some of those in the open Air come in to succeed them.

The best Kinds of Strawberries to plant for Forcing, are the Wood, and the Scarlet; for the Hautboys grow too rampant for this Purpose.

But to return to the Subject of Hot-walls: What I have here inserted concerning the Forcing of Fruits, has been only to obtain these Fruits earlier in the Season, than they would naturally ripen against common Walls. But in some Parts of *England*, where most of our good Kinds of Fruit seldom ripen, it might be very well worth while to build some of these Walls, to obtain good Fruit from the best Kinds of Peaches, Plums, &c. especially in such Places where Fewel is Plenty, because there the Expence will not be great after the first Building of the Walls. For I would not propose to have Coverings of Glass, excepting for a small Proportion of the Walls; the rest may have Frames of Canvas to shut over them, in the same manner as the Glasses are contrived; which will succeed very well, where proper Care is taken; for as there will not be Occasion to cover these Trees until the latter End of *February*, at which time also the Fires must be made, so before the Trees are in Flower, the Weather may be frequently warm enough to open the Covers to admit Sun and Air to the Trees in the Middle of the Day; for if these Covers are kept too closely shut, the Shoots of the Trees will draw very weak, and their Leaves will turn pale, for want of Light and Air. And as the Design of these Contrivances is only to bring the Trees five or at most six

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The Canvas or lighter than these bequire more them. And every over, car last a long wanted a Months, *February*, after this quire any then full Shoots with such Progress Defence for Covers should taken away Trees should

Weeks earlier, than they would naturally come against common Walls; there will be no Necessity of making very large Fires, or keeping the Covers too closely over the Trees.

Instead of Canvas for these Covers, oiled Papers may be used, which should be done in the manner directed for raising of Melons, by pasting as many Sheets of Paper together, as will fit the Frames on which they are to be fixed; and when the Paste is dry, the Paper should be fastened into the Frames, and then the Oil rubbed over on the Outside with a Brush, which will soak thro' the Paper; and when the Paper is dry, the Covers may be used. This Paper will last very well one Season, and the Expence of repairing it will not be very great: wherefore these are to be preferred to the Canvas, because all Sorts of Plants will thrive much better under them, than they will under Canvas, or any other close Covering, which will not admit the Light so well thro' to the Plants.

The Frames designed for either Canvas or Paper, may be made much lighter than those for Glass; because these being very light, will not require much Strength to support them. And if these are well painted, and every Year, when their Use is over, carried into Shelter, they will last a long time; for they will not be wanted abroad longer than four Months, viz. from the End of February, to the End of May; for after this time the Fruit will not require any Covering, the Trees being then full of Leaves; and the young Shoots will by that time have made such Progress, as to become a good Defence for the Fruit. But these Covers should not be too suddenly taken away, but by degrees the Trees should be inured to the open

Air; otherwise the Change will be too great, and may occasion most of the Fruit to fall off, especially if cold Nights should follow.

By this Method Gentlemen may be supplied with most of the best Kinds of Fruit, in the Northern Parts of *England*; where, without some such Care, they can expect very little good Fruit in their Gardens. And as Coal is very plentiful in those Places, the Expence will be very little; therefore I am surpris'd, that most of the Gentlemen who live in the North, do not put this Method in Practice. That there are some few of these Walls built in the North, is well known: but then they are chiefly designed to produce a little early Fruit, more for Curiosity than any real Use: and these Walls are for the most part so ill-contriv'd, that four times the Fuel is expended, as will be required when the Walls are built after the manner here directed: and where the Heat is not pretty equally distributed thro' every Part of the Wall, some of the Trees will have too much Heat, while others will have little Benefit from the Fires.

There are some Persons who build their Hot-walls in such a manner, as to have the greatest Heat under the Border, near to the Roots of their Trees, supposing there is a Necessity of Heat to the Roots as well as the Branches; but this is a great Mistake, and the Fires must extremely injure the Roots of the Trees, by drying up the Moisture of the Earth, as also in scorching the tender Fibres of those Roots which lie near them. Therefore this Practice should not be continued; for it is much the better Method to elevate the first Flue nine Inches or a Foot above the Level of the Border, according as the Ground is dry or wet, than to place it the
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least below the Ground ; which will only dry the Earth, and not warm the Air about the Trees, which is the only Use of artificial Heat ; for it is very commonly practised to draw a Branch of a Vine or other Fruit-tree into a Stove, which Branch will produce its Fruit as early as if the whole Tree had been forced ; when at the same time all the other Branches of the same Tree, which are exposed to the open Air, will not be the least forwarded, tho' they are all nourished by the same Root ; which is a plain Proof, that there is no Necessity of adding any Warmth to the Roots of Fruit-trees, to have their Fruit-earlier or better ripened.

I have also heard of some Walls which have been built for Forcing of Fruit, with one continued Chasm from their Bottoms to the Top ; so that they have been like double Walls, with Places at proper Distances to make the Fires. But these can be of little Use ; for if the Vents are open at their Tops to let out the Smoak, the Heat will also escape with it ; for if the Smoak be not led about three or four times in Flues, in order to warm the Bricks, the Heat will pass off at the Top, without doing much Service to the Trees.

Where the Walls are planted with the best Kinds of Fruit, which are designed to ripen them in Perfection ; if the Autumn should prove cold, or very wet, before the Fruit are ripe, it will be proper to put the Covers over the Trees ; and if there are some slow Fires made to dry off the Damps, it will be of great Use to prevent the Fruit from growing mouldy, and to hasten their Ripening. But when this is practised, the Covers should be taken off whenever the Weather will admit of

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it, that the Fruit may enjoy the Benefit of the free Air, without which they will be insipid or ill-tasted.

Altho' in the former Directions for Forcing of Trees, to have early Fruit, I have advised, that such Trees should have one or two Years Rest, in order to recover Vigour ; yet that is not to be understood of these Trees, which are only designed to be brought forward enough to produce their Fruit in Perfection : for as the Fires are not designed to be made till the Middle or End of *February*, the Trees will not be weakened thereby, because they will be inured to the open Air long before their Fruit is ripe, and will have time to ripen their Shoots, and form their Buds, for the next Year's Bearing : therefore these Trees may be thus forced every Year, without doing them any Injury, provided the Trees are carefully managed.

In forcing Fruit-trees, People generally hang up Thermometers under their Glasses, for the better adjusting the Heat, and regulating the Fires. But when this is practised, they should be hung where the Sun can never shine on them ; for one Hour's Sun-shine upon the Ball of the Thermometer, in the Spring of the Year, will rarefy the Spirits so much, that they will rise to the Top of the Tube ; when at the same time the circumambient Air may not be much more than of a temperate Heat. But as the principal Use of these Thermometers is to regulate the Fires, they are seldom of much Use in the Day-time ; because, if there be only one Hour's Sun-shine in the Day on the Glasses, it will warm the Air sufficiently for the Production of *European* Fruits, without any additional Heat : wherefore there will rarely be any Occasion for continuing of the Fires in the Day.

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And if by the Fires in the Night, the Air is warmed to the temperate Point marked on Mr. *Fowler's* Botanic Thermometers, the Fruit will thrive much better than in a greater Heat.

There are some Persons near *London*, who make it their Business to produce early Fruit to supply the Markets with ; which they perform by the Heat of Dung only, having no Fire-walls in their Gardens. The Method which these People follow, is to have a good Quantity of new Dung laid in a Heap to warm (after the same manner as is practised for making of Hot-beds) : when this Dung is in a proper Temperature of Heat, they lay it close on the Backside of their Fruit-wall, about four Feet thick at the Bottom, and sloping to about ten Inches or a Foot thick at the Top. This Dung should be gently beat down with a Fork, to prevent the Heat from going off too soon ; but it should not be trodden down too hard, lest that should prevent its Heating. The Outside of the Dung should be laid as smooth as possible, that the Wet may run off more easily ; and if there is a Covering of Thatch, as is sometimes practised, it preserves the Dung from rotting too soon : by which means the Heat is continued the longer. The Time for laying this Dung to the Back of the Wall, is the same as for making the Fires, (*i. e.*) about the Middle or End of *January*. This first Parcel of Dung will continue warm about a Month or five Weeks, when there should be a fresh Supply of new Dung prepared, and the old taken quite away, or mixed up with this new Dung, to renew the Heat ; which, if it works kindly, will be sufficient to last the Season. These Walls are covered with Glasses or Canvas, in the same

manner as the Fire-walls ; and the Trees must be treated the same way : but there must be more Care taken to open the Glasses against these Walls, whenever the Weather will permit ; otherwise the Steam of the Dung will occasion a great Dampness thro' the Wall ; which, if pent in about the Trees, will be very pernicious to them, especially at the time they are in Flower.

By this Method some Gardeners have forced long Walls filled with old well-grown Fruit-trees, which have annually produced great Quantities of Fruit, and have well answered their Expence. But as in many Parts of *England* it will be very difficult to procure a sufficient Quantity of new Dung for this Purpose, the Fire-walls are the most useful, and least expensive.

I have seen in some Places long Timber-fences erected to force Fruit-trees, by laying new Dung against the Backside, in the same manner as is practised for the Walls ; but these are by no means proper, because the Steam of the Dung will easily get thro' every little Crack or Joint of the Boards, to the great Prejudice of the Trees : besides, the Boards will continue very damp, as long as any Moisture remains in the Dung, which will also be very injurious to them ; and as these Boards will in a few Years decay, these will be the most expensive, if they are kept in Repair for some Years, and will never answer the Design so well as Walls.

WILDERNESS.

In the former Volumes of the *Gardeners Dictionary*, I laid down some Rules for the designing, planting, and managing of Wildernesses, so as to render them magnificent and beautiful ; to which I shall here add a few Instructions, which will explain some of those Rules, which have

been by several Persons misapplied, by mistaking what I had there inserted.

As to the planting of the Trees in Wildernesses, according to their different Growths, I did not thereby mean to have whole Lines of the same Sort of Tree, but as many different Sorts of Trees as the Soil or Situation would admit, observing to place those of the largest Growth toward the Inside of the Quarters, where they are so situated as to have Openings round them. But if the Boundaries of the Quarters are at the Extremity of the Garden, and there are no Prospects beyond them worth enjoying; then the largest Trees should be placed next to the Boundaries, and the several Trees of lower Growth planted before them in form of a Slope. But by this I would not be understood to mean, that the Trees should all of them be so chosen and planted, as to form a regular even Slope, which would have too uniform an Appearance to be entertaining to the Sight. Therefore all that I design by this Method of Planting is, that every Tree may appear to the Sight at a proper Distance, that the Extent of the Plantation may be viewed; which is too frequently obstructed by planting large Trees near the Walks and Openings, and placing low Trees and Shrubs behind them.

In the planting of these Trees, there are two principal Things to be regarded; the first is, To dispose them in such a manner, that the different Colours of their Leaves may appear in some sort like the Lights and Shades in Pictures. The second is, That their different Manners of Growing may be considered, and so placed as to make so many irregular Breaks in the Plantation, as the Size of the Ground will

admit: for Instance, by mixing some Trees, whose Heads grow in a pyramidal Form, amongst others whose Heads are globular or conical, which will make the whole appear more picturesque and agreeable. But where the Plantation is very large, and is seen from a great Distance, there the Trees should be so planted, as that several Trees, whose Growth and the Colour of the Leaves appear the same, may be joined near each other, that their Shades, and the Breaks which they make, may be distinguished; for when single Trees of each Sort are intermixed amongst others of different Kinds, they do not strike the Eye in large Plantations near so well as when many of a Kind appear in Clumps.

In Plantations of Ever-green-trees, there may be a greater Diversity made in regard to their several Forms of Growth, than there can be amongst the deciduous Trees; because there are several Sorts of Ever-greens, which naturally grow in form of Pyramids; and there are others which grow in form of Cones, and some which spread and extend their Branches in various irregular Figures. And these are also of very different Shades; so that when they are properly disposed, they will make a beautiful Appearance; especially in the Winter Season, when other Trees are destitute of Leaves. But that any Person who is desirous to make one of these Plantations, may not commit a Blunder, by not knowing the different Forms of the Growths of these Trees, I shall here mention some of the most known Ever-greens, distinguishing them according to their Growths.

Pyramidal Ever-green-trees.

Common or Spruce Firr.

Silver Firr.

Cornish

Cornish
Balm
Lord
Cedar

Cypress

Corn

Man

Scotch

Pin

Clust

Jersey

Straw

Ilex.

Bays.

Cork

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Holly

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Cornish long-con'd Firr.

Balm of Gilead Firr.

Lord Weymouth's Firr.

Cedar of Virginia.

—— of Carolina.

—— of Bermudas.

Cypress.

Conical Ever-green-trees.

Manured Pine,

Scotch Pine.

Pinafter, or Wild Pine.

Cluster Pine.

Jersey Pine.

Strawberry-tree.

Ilex.

Bays.

Cork-tree.

Spreading Ever-green-trees.

Alaternus's.

Phillyrea's.

Holly.

Cedar of Libanus.

Laurel.

Laurel-leav'd Tulip-tree.

Tamarisk.

Laurus Tinus.

As to the different Heights to which these Trees naturally grow, that will be described in a Catalogue added at the End of this Volume; where all the different *Species* of Ever-green-trees and Shrubs will be enumerated and ranged according to the several Sizes to which they usually grow in this Country.

Altho' I have advis'd in the former Volumes, not to mix Ever-green-trees with those which lose their Leaves; yet by that I did not intend intirely to separate them in all Plantations, but only to avoid the confus'd manner of planting them together, which is too often practis'd by unskilful Persons, many times to the great Prejudice of the Trees; because several of the Ever-greens will be starved, if they are planted too near some Sorts of deciduous Trees: besides, the Soil will rarely

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suit all the Sorts which are thus injudiciously mixed together; so that if some of the Sorts are such as the Soil is naturally dispos'd to nourish, the others, which require a very different Soil, will not thrive amongst them.

The best Situation for most of the largest Ever-green-trees, is to plant them in open Groves, where they will thrive much better, than if they are crowd'd too close together; and if these Groves are judiciously placed, they will be great Ornaments to large Gardens.

In the planting of very large Wildernes'es, there should be Care had to fill up the Ground on each Side of the private Serpentine-walks, with Shrubs and Underwood, in such a manner, as that where the Walks twist so much, as in some Places to be but a small Distance apart, the Wood may be so thick as to prevent the Seeing from one Walk to the other. This must be more particularly regarded in small Gardens; where there should be as much Walking contriv'd, as the Ground will possibly admit. On each Side of these private Walks, should be planted a good Number of the different Sorts of Honeyfuckles, which may be encouraged to climb up the Trees, and to grow rude over the adjoining Bushes. There should also be some Sweetbrier, Roses, and other sweet Shrubs planted, which will perfume the Walks in an Evening, or after Showers of Rain.

Under the large Trees may be planted Hazel, berry-bearing Alder, Laurels, Laurus Tinus, and such other Shrubs as will grow under Shade; and if some of the common climbing Plants be placed so as to grow up the larger Trees, in the manner they are often observed in Woods, they will have a very good

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Effect to the Eye, and be serviceable in thickening of the Quarters, where they are narrow. And if there are a good Number of low Shrubs and Plants, such as naturally grow in Woods, scattered up and down in the Quarters under the Trees, they will appear much better than either the common Weeds, which naturally grow there, or the Ground lying bare, as it many times does in large wilderness Quarters. Of these Shrubs and Plants, there will be a Catalogue at the End of this Volume, by which any Person may be instructed as to the Sorts, which will thrive in such shady Places.

The smaller Serpentine-walks, which lead thro' the Quarters of the Plantations, must be proportioned according to the Size of the Ground: if the Quarters are very large, then the Walks may be seven or eight Feet wide, to admit of two Persons walking abreast; but in smaller Gardens, where there are desired as many Walks as can be conveniently made, four Feet in Width will be sufficient. For it will be necessary to have the Divisions between the Walks double the Width of the Walks; otherwise it will be very difficult to get the Shrubs and Underwood thick enough to render the Walks private.

If the Ground where these Wildernesses are designed to be made, is very uneven, it will still add a Variety to the Plantation, as it will also when there are very different Soils; because then a judicious Planter will adapt the several Sorts of Trees and Plants to the Soils in which they delight to grow; so that there may be a greater Variety of Sorts planted, and they will thrive much better, than on a level Ground; and the Walks, by being twisted about, may be so contrived, as to be as easy to walk on, as those on the most level Spot.

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If the Ground where these Wildernesses are designed to be made, hath large Trees already growing on it, they will be a great Advantage, by affording a present Shade; for the Walks may be twisted about in such a manner, as that the Trees may not interfere with them; and then by trenching and clearing the Ground round the Outsides of the Quarters, it will be fit to receive flowering Shrubs, and other Trees to face the other larger Trees; which if carefully performed, will render the Plantation very beautiful. And if under these Trees the Ground is carefully clear'd and trench'd, it will improve the Growth of the Trees; and many Under-shrubs and Wood-plants may be planted to thicken up the Quarters, so as to make the Walks private.

All Trees and Shrubs which are planted in these Wildernesses, are to be suffered to grow rude, and not to have any other pruning, than is absolutely necessary to prevent their spreading over the Walks, or too much over-bearing the neighbouring Trees or Shrubs, so that they may have an equal Advantage of the open Air; by which means there will be little Expence in keeping large Plantations of this Kind, especially after the Trees and Shrubs are well rooted in the Ground; for they will in a great measure prevent the Growth of Weeds, by overshadowing the Ground with their Branches; and there is nothing more ornamental in Gardens, when they are judiciously contrived.

Where-ever there are large Woods so situated, as that they may be taken into the Design of the Garden, they may at an easy Expence be rendered very beautiful, by only cutting away unsightly Trees and Shrubs, and adding some flowering Trees, and

and sweet Places, of different about as far as possible. some large Trees where the Trees which may be planted in Vases, Upright, it will be a magnificent Sight. In laying out Woods, the gardener had better try; so as to be distant from the Sight, than which the lead, from which be viewed. able Surroundings having trees, Walks, to the advantage of the Village, a remarkable Sight; or large Boats which will have a fine Effect.

But as to the Rules which should be observed in the situation, of a Wilderness, Judgment should be used in the other Particulars, should be a Situation, cute, left should be Trees; which when opened, which directed by others who consider the country, so as to View as

and sweet-smelling Shrubs, in proper Places, and opening Walks thro' the different Parts, which may be twisted about after an easy natural manner, so as to shew as little of Art as possible. If to this there are added some large Openings, in such Places where there are few good Trees, which may be varied in their Figures, and some little Buildings, Obelisks, Vases, Urns, &c. placed properly in them, it will add greatly to their Magnificence.

In laying out of these Walks thro' Woods, there should be a great Regard had to the neighbouring Country; so as where-ever there are any distant Objects which appear to the Sight, there should be Openings, to which the Serpentine-walks should lead, from whence the Objects may be viewed; which will be an agreeable Surprize to Strangers, after having traversed thro' many of these Walks, to be led to a fine Prospect of the adjacent Country; where a Village, Church, or some other remarkable Object, may appear to the Sight; or perhaps a River, or other large Body of Water, either of which will have a very agreeable Effect.

But as there is no laying down Rules which can suit with every Situation, the Designing of these Wildernesses must be left to the Judgment of the Owner, or some other Person of a good Taste, who should be a little conversant with the Situation, before he begins to execute, lest many irreparable Mistakes should be made, by destroying of Trees; which has too often happened, when these Works have been directed by unskilful Persons, or by others who have not taken Time to consider enough the adjoining Country, so as to bring as many Objects to View as can possibly be obtained.

Therefore I shall not add any farther Directions, since those inserted in this Place, being added to what were exhibited in the former Volumes, will be sufficient Instructions for the right laying out and planting any of these kinds of Work.

WINE.

In the Abridgment of the first Volume of the *Gardeners Dictionary* is inserted, an Account of the Management of Vineyards in *England*, as also the Method of pressing the Grapes, and making the Wine, as it hath been practised by some curious Persons, who have made Wine in this Country: but as the Spirit for planting of Vineyards in *England*, has of late Years increased, I have inserted in this Volume the different Methods practised in the several Countries abroad, for making their Wines; and shall first begin with the *Italian Wines*, particularly those of *Chianti*, which are the most esteemed.

The Season for gathering the Grapes, and making the Wine, is very uncertain, depending upon the Weather that has been the preceding Spring and Summer, which makes it sooner or later 15 or 20 Days in *Chianti*: when the Season has been good, they begin to cut their Grapes about *Michaelmas*, and in the Plains a Week or ten Days sooner. In this they every-where govern themselves according to the Ripeness of their Grapes, and the Prospect of the Weather, aiming to have a perfect dry Season to do it in.

The Grapes being of a due Ripeness, and the Weather warm and dry, as soon as the Sun or Wind has consum'd the Dew that was on them, they cut them, and put them into Piggins, and carry them, if at a Distance, on Mules, or, if near, between two Men, to the Wine-vat;

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and then either bruising them to Mash, in the said Piggins, with a Club, throw them directly therein, or else into a Vessel resembling a very large Hopper, with a Grate lengthwise ; then Boards being placed over the Vat, a Lad with his Feet treads them out, the Juice, Husks, Stones, and Stalks all passing through the Grate into the Vat ; and so they continue to do, till the Vat (which usually contains from four to five Tuns, sometimes eight, ten, nay, as far as fifteen, or twenty in some large Vineyards, in which there are sometimes several of them) is full ; when immediately, or sometimes in a few Hours before they fill it, it will set a boiling, which raises the Husks, Stalks, and Stones to the Top, and these make a thick Crust ; and thus it continues boiling for many Days, more or less, according to the Strength of it, till it be fit to be drawn off, which is to be distinguished by the Palate, wherein the greatest Skill in making Wine consists. The low Wines of the Plains are ready in about ten Days, those of the Hills in about fifteen, of the Mountains in *Chianti* eighteen or twenty, and sometimes more, in the Hastening or Retarding whereof the Weather has some Share ; so that when they are near ready, they taste them every eight Hours.

The more the Wines boil, the drier they will be, the Colour deeper ; and the less, the sweeter and paler : and what is said above, is to be understood of Red-wines, which are the chief Produce of this Country ; whilst to make their strong White-wines or Muscadines, they gather their Grapes carefully, and lay them three or four Days, or more, in the Sun, taking care to carry them within Doors, or under Shelters in the Night-time, that so no Dew may fall on them.

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When they are put into the Vat, they let them boil but little, five or six Days at most, and then put them into the Cask, shifting them from one Cask to another, twice or thrice, to make them become fine ; and for the *Verdea* or *White Florence*, as it is called, they draw it off from the Vat almost as soon as it begins to boil, and has raised the Crust ; and then letting it boil in the Cask into which they have drawn it, thirty-six Hours, or, at most, two Days, they shift it into another, and so in a few Hours into a third and fourth, to check and prevent its Fermentation, which gives it the Sweetness it has ; but then it is never perfectly fine, tho' some People both in *Italy* and *England*, especially among the Women, are very fond of it.

N.B. *Those Grapes at the End of the Bunches are weaker in Quality, as well as less ripe, than those that grow nigher to the Stalk ; and therefore some extremely curious Persons, to make a small Quantity of very choice Wines, cut them off, and make a Wine by itself, which is much inferior to that which is made of the upper Part of the Bunch. This Practice, tho' attended with Trouble, may be recommended for a larger Parcel, in such Years as the Grapes are badly ripe, to have some Wine, at least, in Perfection.*

N.B. *Those Persons who value themselves on making the best Wines, and endeavour to keep up the Reputation of their Vineyards and Cellars, in cutting their Grapes, leave the unripe, or those which are infected with Rottenness, together, till the last, and with them make a Vat or more by themselves, of Vin Scauro, or Refuse Wine, which serves for common Use ; for which also they mix Water with the Bottom of their Vats, and the Husks, &c. and make*

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a pleasant, brisk Drink, much preferable to Water-Cyder; but the Weather once coming in warm, turns it eager and undrinkable.

When any Wines are boiling in the Vat, it raises a Warmth in the Room, which is accounted good in many Distempers, especially for such as have a Weakness in any of their Limbs, to put them into a Vat of boiling Wine; and the Husks, &c. that come out of the Vat, are esteemed very good for the like Purpose.

When the Wines are found to be ready, they proceed to draw them off, which are now properly called *Wines* (before which they are termed *Mosto*, i. e. in *English*, *Wort*); for which Purpose, within three or Four Inches of the Bottom of the Vat, there is a Cock fix'd therein; when in small Barrels they carry and put it into the large Buts, which, in *Chianti*, hold, some of them, seven or eight Tuns, but generally two or three Tuns, made of thick Chestnut, the Staves being better than an Inch and a half thick, and more than twice as high as they are long, which they never wash; but having left a Gallon or two, or, it may be, three or four, of Wine in them, when they draw it off the Spring or Summer before. When they are about filling them again, to clear them out, they send in a Lad at the Door which is made in the Head of the Cask, to do it with a Sponge, and to wash it with some new Wine; and this without wiping off any of the *Argol*, which they think preserves the Wine the better.

In these Casks, which last many Years, (and have *Argol* in them of the Thickness sometimes of three or four Inches) they let them remain till they have an Opportunity of

selling them, taking care to keep them full quite to the Bung, with a wooden Stopper. This is what they practise in *Chianti*, where the best Wines are made, and whence, from those Buts, they are drawn into Flasks, and carried, at the Expence of about a Crown for a Mule-load, to *Florence*, in order for Exportation; but in other Places they draw them off into less Casks, of which Wines, except some *Carnigiano's*, and those of *Val d'Arno*, few or none are exported, but serve for the Consumption of the Country. Some of these have a pleasant Flavour and Briskness, tho' of no great Body, many of which will not keep the Summer over, except in cool Cellars, in the Places where made; such is the nice Nature of this Country Wines in general. Nor are the choicest *Chianti's* exempt: for at two Seasons of the Year, the Beginnings of *June* and *September*, the one when the Grapes are in Flower, and the other when they begin to ripen, some even of the best Wines are apt to change, especially at this latter Season; not that they turn eager, but take a most unpleasing Taste, which renders them unfit, not only for Drinking, but even to make Vinegar of; and is called the *Settembrine*. And what is most strange, is, that one Cask drawn out of the same Vat shall be infected, and another not, but be perfectly good; and yet both have been kept in the same Cellar.

As this Change happens not to Wine in Flasks, tho' that will turn eager, I am apt to attribute it to some Fault in filling the Cask, which must always be kept full, and which, either by letting alone too long, till the Decrease be too great, and the Pan or Scum that there naturally is on all Wine, being thereby too

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much dilated, is subject to break, or else being broke by hasty filling up, gives it that insipid Taste of a rotten Vine-leaf.

But against this there is a very strong Objection, that this Defect seizes the Wine at a particular Season, in *September*, over which if it gets, it will hold good for many Years.

Therefore the Case is worthy the Inquiry of the Naturalists, whilst it is evident, at least for the first Year after it made, Wines in general are more or less affected by the Circumstances wherein the Vines or Grapes at that time are; and if they get well over the Time of the Grapes flowering, will keep good 'till that of their beginning to ripen.

As for the Time that the Wines are fit to drink, the poorer sort of People drink that of the Plains almost as soon as drawn off; but from the 11th of *November* may be said to be its proper Season.

Those of the Hills are a very pleasant Drink about *Christmas*, and during the Spring; but 'till *June* the *Chianti's* are not esteemed to be fit for Drinking, tho' they are fit for Exportation in Butts in *December*, and in the Flasks and Chests about the Beginning of *February*: if sooner shipped off in that manner, tho' apparently fine, there will be a Sediment in the Flasks.

The Art of brewing Wines (further than the Throwing into each great Butt the Quantity of two or three Hatfuls of the choicest Grapes they had preserved, and laid on Mats in the Sun for that Purpose, which were picked from the Stalks, and are esteemed proper for their Wines to feed on, and which they call *Governo*) was not known in *Chianti*, (though the Hosts here practised something like it, mixing the small

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Wines of this Country with the strong ones of other Parts; and fining their White-wines with Isinglass, Whites of Eggs, Lime, and the like; and were thought to put Alum into their Red-wines to preserve them, and promote a Thirst in their Guests) till on the breaking out of the first *French War*, an *English Merchant* from *Bordeaux* came into these Parts, with a View to accommodate the Wines which were made in the best Parts of *Chianti*, and were naturally of a true bright Ruby, with a pleasant Flavour, and a silky Softness, to the *English Palates*, then in Love with the deep-coloured rough Clarets; who instructed them first in the making of Black-wines, with the *L' Abrusco*, or *Wild Grape*; which being mixed with the *Chianti's*, gave them a deeper Colour, and a rougher Taste; and being liked in *England*, gave the first Occasion to great Quantities being sent thither every Year in Casks: in the making of which, the said Gentleman was the first that instructed them; for before, their Casks were, as above related, very unwieldy. This put them also (there being a Demand for their Wines) upon increasing and enlarging their Cultivations, and making some of them in such Places, as the Exposition was not very proper for; as also to cultivate in Vineyards the said *L' Abrusco*, or *Wild Grape*, and which certainly was the most proper to mix with their other Grapes in the Vat, boiling them together. Thus all succeeded pretty well, till the Year 1607, when the Vintage proving very bad, and there being a great Demand of their Wines for *England*, by mixing the low Wines with the high ones of *Chianti*, which that Season were not very good, they brought these Wines into such a Disreputation, that they have never

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never been able to regain their Credit, though they have since, many times, had those that are good.

Whether it be, that the Taste of the People is run upon *Portugal* Wines, or some other Cause, they have never been able, as I said, to recover it so as to have any considerable Quantity exported in Casks from these Parts; and the Person that first directed the Affair, had the Dissatisfaction to see his Project miscarry, after it had in a manner succeeded, and himself reaped considerable Benefit thereby.

At present, therefore, what goes for *England* is chiefly in Chests, and no more Black-wines, as used to be formerly, and these are sent just as they are made; but still in *Chianti*, as they have Cultivations of the *Brusco* Grape, (which, however, is much different from the wild one, and becomes much larger and more generous) they continue to mix them with their other Grapes, which gives the great Colour as well as a Roughness to their Wines, and is agreeable enough to the *English* Taste.

The Manner of making Wine in Champagne, and how it may be propagated in other Provinces, to bring it to Perfection.

Wine is so delicate a Liquor, and an Aliment so proper to give Strength, and to preserve Health, if used with Moderation, that one may very well wonder, that in most of the Provinces of *France* they make it with so much Negligence, in all those Places where it might be excellent.

The *Champenois* are exempted from this Reproach, and, whether it be from a Delicacy of Taste, or a Desire of making an Advantage of their Wines, or a Facility in ren-

dering them better, they have been always more industrious to make them more exquisite, than those of the other Provinces of the Kingdom.

It is true, it is scarce sixty Years since they have studied to make pale Wine, which is very near White; but before, their Red-wine was made with more Care and Neatness, than any other of the Wines of the Kingdom.

I shall not enter upon the ancient or modern Dispute, as to the Preference between the Wines of *Champagne* and *Burgundy*: I shall content myself with taking Notice of all that the People of *Champagne* have invented, to give the Fineness and Agreeableness to their Wines; and by the Observations that may be made therefrom, it will be easy to see, that the same may be imitated in other Provinces, so as to come pretty near that Lightness and Exquiteness.

If these Essays shall give Hopes of Success for the future, the Wines of those Provinces might be brought to Perfection by degrees, where they might be delicious, and where they are but too common, because they have never studied to give them that Fineness.

To make an excellent Wine of the first Pressing, having first well examined the Maturity of the Grapes, you ought to endeavour not to gather them but on Days that are very dewy, and in hot Years, after a little Rain, when you can be so happy as to have it. As the Grapes are not ripe till towards the End of *September*, and sometimes the Beginning of *October*, Dew is rarely wanting in Vintage-time. This Dew gives the Grapes a Flower or Farina on the Outside, which they call *Azur*, and inwardly a Freshness, which is the Cause that it does not heat very easily.

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easily, and that the Wine is not coloured.

It is very opportune, if there chances to be a misty Day in dry Years, which now-and-then happens: the Wine is not only thence more white and delicate, but the Quantity is by much the greater, being augmented by near one fourth Part. A private Person, who has but twelve Pieces of Wine, in gathering his Vintage in a Morning, which has the Sun without Dew, will have sixteen or seventeen, if the Morning be misty; and fourteen or fifteen, if it has no Mist, but yet has a good Dew. The Reason of this is, that the Dew, and, above all, the Mist, renders the Grapes tender, so that the Whole, in a manner, turns into Wine.

The Wine produced from the Grapes that have not been warmed the Moment they are cut, will still remain much paler; whereas when the Sun has warmed the Substance of the Grape, it will become more red by the Motion of the Parts; but the Quantity will be lessened either by reason of Transpiration, or because the Rind has been thickened and hardened by the Sun, whereby it yields its Juice with more Difficulty. This, Experience hath taught, is of so much the more Concern, by how much the more certain it is.

They agree in *Champagne*, that the Wine which they call *River Wine*, is ordinarily paler than that of the Mountains, but they do not give the Reason for it: I believe the Vineyards that are near a River enjoy all the Night a fresh Air, which the River exhales; whereas the Vineyards of Mountains don't respire, during the Night, that Warmth which proceeds from the Exhalations of the Earth, and it is that which makes the Colour more or less; moreover, when the Years are very

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hot, they cannot, either to those of the River or of the Mountains, warrant the Colour; and when the Years are cold, neither the Wines of the Mountains, nor those of the Rivers, are coloured: the Reason is the same, because the Wines of the Rivers are more soft, forward, and sooner fit for drinking, than the others that are harder, more heady, and later fit. They call the Wines of the River, *Auville*, *Ay*, *Epernay*, *Cumieres*, *Pierry*, as *Fluery*, *Damery*, *Vanteuil*, and others; but *Verzenay*, *Sillery*, *St. Thierry*, *Mailly*, *Rilly*, and some others, are of the Mountains; these latter Wines keep as well as the first, and in good Years they keep equally well in Bottles for five or six Years.

They gather not all the Grapes without Distinction, nor at all Hours in the Day, but they chuse the ripest and bluest; those are the best, and make the most exquisite Wine, whose Berries grow not too close together, but are a little separated, whereby they ripen perfectly well: for those that are close joined together, never ripen thoroughly. They cut them with a small crooked Knife, with as much Neatness, and as little of the Tail, as they can; and they lay them very gently on the Baskets, so as not to bruise one Grape.

With thirty Grape-gatherers they will run over a Vineyard of thirty Arpents in three or four Hours, to make one first Pressing of ten or twelve Pieces.

In wet Years, great Care should be taken not to put any Grape that is spoil'd into the Baskets; and at all times you must be very careful to cut away the rotten Grapes, or those that are bruised, or quite dried up; but you must never stone them.

They begin the gathering of Grapes half an Hour after Sun-rising; if the Sun is not clouded,

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and it is a little hot, about nine or ten o' Clock they leave off gathering, and make their *Sac*, which is one of the first Pressing; because after this Hour the Grape being warm, the Wine will be of a red Colour or Tint, and will be a long while very heady.

Upon these Occasions they get a great Number of Gatherers, to be able to make up a *Sac* for a Pressing in two or three Hours: if it be overcast, they may gather the whole Day, because the Grape will preserve its Freshness upon the Stock.

The Gatherers and the Pressers ought to take great Care, that the Grapes be neither foul nor heated when they are pressed; and also, that the Grapes have their Flower under the Press.

When the Press is near the Vineyard, it is easy to prevent the Wine from having a Colour, because the Grapes may be carried gently and neatly in a little time; but when they are two or three Leagues off, they being obliged to send the Grapes in Casks, and in Carts, to press it as soon as may be, it is hardly to be avoided but that the Wine will be coloured, except in very moist and cold Years.

This is a certain Principle, that when the Grapes are cut, the sooner they are pressed, the more pale and delicate is the Wine; for by how much the more the Wine stands upon the *Marc*, the redder it is; so that it is of great Importance to hasten the Gathering and Pressing of the Grapes.

When the Grapes have been put under the Press, or on the *Marc*, they put three great Rods or Poles of ten or twelve Inches round upon them, one at either End in Length, and the third in the Middle on the same Side. These at the Extremities

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serve to describe the Lines which they ought to follow with their Cutting-shovels, in cutting the *Marc*, the Substance squeezed on two Sides. After the Cut is made, they lay upon these Poles, and on the Grapes, Planks of the Size of the Press; and upon these Planks Half-beams of eight or nine Inches square, which they call *Moyaux*, at a Foot Distance one from the other; they put four or five Rows of these *Moyaux* across one upon another, which elevates it with the Bag about four or five Feet; and they let down upon the Whole three or four great Beams of an immense Weight, which are placed in the middle of the Press across, and borne up at one End by two strong Side-beams, which are sunk fifteen or twenty Feet into the Ground, and which are fastened to the Bases which cross them: at the other End there is a *Cage*, as they call it, or a Wheel with a Skrew to raise or lower these great Beams upon the *Moyaux*, and thus to press the Grapes. Then they presently raise, by the means of a Skrew, the End of the Trees on the Side of the Wheel, or of the *Cage*, which lowers the other End of the Cheeks or Side-beams; then they drive with a great Mallet two or four great wooden Quoins between the Notch which is in the Side-beams or Cheeks, and these Beams are also lowered to keep them in their Position, and to prevent them from rising; and after this they lower the other End by the Aid of the Skrew, which serves also to raise it.

They use in these Presses large Steel Shovels about a Foot in Breadth, and one and a half in Depth, very heavy and sharp at the Bottom, to cut the *Marc* of the Grapes easily at the four Sides.

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The first time they lower the great Beams upon the Grapes, they call the Wine that runs out, the *Wine of Goute*, because it is the finest and most exquisite in the Grape. This Wine is very thin, and has not Body enough; they call this first Pressing *L' Abaissement*. This must be done with a great deal of Dexterity and Briskness, that the Beams may be raised immediately, to send back to the Middle instantly the Grapes which are slipped to the Sides all round about, to press them briskly the second or third time. They call these two other Lowerings of the Beams, the first and second Cutting: they must be done in less than an Hour, if you would have the Wine very pale, because Time is not to be given to the Grapes to heat, nor the Liquor to remain upon the *Marc*.

They ordinarily mingle the Wine of the *Abaissement*, or Lowering, with that of the first and second Cut; and sometimes, but very rarely, with that of the third, according as the Years are more or less hot; and thence they call a Wine of the first pressing, Fine.

Some preserve one or two *Carteaux* of the first Taste, which is that of the Lowering, by itself; but it is too small or thin, and has not a sufficient Body for Wine.

There are some skilful Persons, who affirm that the Lowerings of the Wines ought not to be mixed but with those of the first Cut, because that is much more delicate than that of the second and third; and that besides, there is time enough to mingle them afterwards, if they are found to be too fine, and pale enough; and the rather, because there is no Remedy, if it be done at the first.

At every Cut they raise the great

Beams, and they take away all the *Moyaux* with the Planks, and the Rods that are immediately upon the Grapes, or upon the *Marc*. With these Steel Cutting-shovels they cut the *Marc* on four Sides, and they cast down with their wooden Shovels that which is cut, and they spread it even all over the Square to the End, that it may not disperse so easily; that is to say, in those Presses which they call *Etiquets*; they take care that the Wheel which is upon the Middle, may be made to bear, especially upon the Rammer, over all the Breadth, in such manner that the Bag may be equal.

The second Cut is more plentiful than the Lowering and the first, because the Grapes begin to be well bruised, and they do not slip so much to the Sides.

The Wine strains from the Press into a Punchion, having the Head staved out, or some other large Vessel prepared for the Purpose, and sunk into the Ground on the Fore-side to receive it. It appears to be drawn a little upon the Red; but it loses this little of its Colour according as it is boiling, and as it clarifies itself in the Tun; and it remains perfectly white, especially when they have pressed the two first Cuts with much Dispatch; but principally when they have gathered the Grapes during the Dew, or in a shady Time. Although these Wines are white, they call them grey, because they are made only of black Grapes.

If the Year be hot, and the Wine of the third Cut has a Colour, it must be mingled, not with that of the foregoing, but with that of the fourth, and sometimes, though but very rarely, with that of the fifth. They are not in so much Haste for these Cuts as for the first; they make an Interval of a good Half-

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hour between the one and the other. The Wine that comes thence has more of Colour than this, which they call the *Partridge's Eye*, or, the *Wine of the Cut*: it is a strong Wine, pleasant, fine, good for an Ordinary, but is better when it is old.

When the Wine of the fourth Cut is too deep, they don't mingle it with Wine of the Cut; but they observe to mingle it with Wine of the fifth, sixth, or seventh Cut, which they call *Wine of the Press*, which is too red, pretty hard, but fit for Household-drinking: but when they are not in Haile, they leave an Interval of an Hour and a half between every one of the three last Cuts; as much to give time to the Wine to strain insensibly, as to give the Pressers time to sleep, or to rest themselves; for the Fatigue is very great, they being obliged to carry it on, Night and Day, for about three Weeks. The Pressers of *Champagne* press the Grapes so hard, that after they have done, the *Marc* is as hard as a Stone. They put this *Marc* into old Casks, with the Heads out, and they sell it to People, who draw from it an *Aqua Vitæ* of a very bad Taste, which they call the *Aqua Vitæ* of *Aixne*; but it is good for a great many Purposes.

Those who have many Vineyards, also make two, three, or four first Pressings of fine Wine, by chusing always the most delicate and ripest Grapes for their Firsts. These are always much superior the one to the other for Goodness and for Price; so that if the Wine of one of the first Pressings sells for six hundred Livres a *Queue*, that of the second will not sell for above four hundred and fifty, and that of the third two hundred

and fifty, although all the Wines are of one and the same Vineyard.

In every first Pressing there are ordinarily two-thirds of fine Wine, one half-third of Wine of the Cut, and one half-third of the Wine of the Press: thus one *Cuvée* of five or six Pieces of Wine will consist of nine or ten of Fine, three or four of *Taille*, and two or three of the Press.

Of the common black Grapes, which remain after one second or third *Cuvée*, they make one with those that are not very ripe, and which they call *Verderons*. They make of the Whole a Wine pretty high-coloured, which they sell to the Country People, or that serves for their Domestics: they also leave these Grapes two whole Days in a great Tub, before they press them, to the end that the Wine may be the redder; and they mingle all that comes from the different *Tailles* of this Vintage.

The white Grapes do not come into this *Cuvée*; they leave them upon the Stock till towards *All Saints Day*, or sometimes till towards the eighth or tenth of *November*, at which time the Mornings are cold, to make of it a *Vin-Bourra*, as they call it, (*i. e.* a new and sweet White-wine, that has not worked) which they sell while it is quite hot.

This Wine is still the better when the Grapes have borne the white Frosts of *October* and *November*, or at least very cold Mornings. A little Rottenness in these Grapes does no Harm; you need only take care to give the Wine leave to throw out the Filth by the Ferment, and purify.

This White-wine may be mingled with the Wine of the *Taille*, if you will, if you have not an Opportunity

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nity of selling it presently after it is boiled. This makes a very good Wine to drink, is pretty pale, and has a good Body.

All these fine Wines ought to be put into a new Cask, as also should those of the *Taille*; but the Red-wines, the Green, and those of the Press, may be put into an old Cask, though it ought to be a good one.

You must never rub the Tuns over with Brimstone; you should only wash them in common Water, a little while before they are filled, and give them time to drain well: some Handfuls of Flowers or Peach-leaves may be mingled with the Water; and they pretend that this will do the Wine Good.

In *Champaigne* they rarely put it in any thing but Pieces [*Carteux*] and Cades.

The River Measure is different from that of the Mountains. The Pieces of the Rivers contain about two hundred and ten *Paris* Pints, (a *Paris* Pint is equal to an *English* Quart) the *Carteux* an hundred and ten; the Pieces of the Mountains contain about two hundred and forty Pints, at the least two hundred and thirty *Paris* Measure, and the *Carteux* an hundred and fifteen, or an hundred and twenty.

They mark regularly, with Chalk, every Piece, and every *Carteux*, which denotes the first, second or third *Cuvée*; the Wine of the Cutting of the Press, the White-wine and the Green; they also write the Name of the Vineyard from whence the Grapes came.

Some few Years since, some private Persons in *Champaigne* have attempted to make Wine as red as that of *Burgundy*, and they have succeeded pretty well as to the Colour; but, in my Opinion, these Sorts of Wines do not come up to those of

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Burgundy, in that they are not so soft, nor so agreeable to the Palate: nevertheless many Persons call for these Wines; and some esteem them the best.

And as those grey Wines are a little fallen, there was made, the last Year, a great deal of Red in *Champaigne*. These Wines do well for *Flanders*, where they are frequently sold for those of *Burgundy*.

Of all these Wines, there is none better for Health, nor more agreeable to the Palate, than the grey Wine of *Champaigne*, of the Colour of a *Partridge's Eye*, or the Wines of the two first *Tailles* of a first Pressing in pretty hot Years.

This Wine has a Body, a Tartness, a Headiness, a Balsamickness or Perfume, a Quickness and Delicateness, that exceeds all the most exquisite ones of *Burgundy*.

And that which should engage one to drink it, is its Lightness, which makes it strain and pass quicker through the Body than any other Wine in the Kingdom. It is a Mistake to be of Opinion, that the Wine of *Champaigne* can give the Gout. I have scarce ever seen one gouty Person in this whole Province; and there need be no better Proof.

To make good Wine in *Champaigne*, the black Grapes ought to be gathered in the Heat of the Day. Care is to be taken to chuse them well, and not to mingle with them the Grapes of the Vine-Arbour, nor the green ones, or those that are partly rotten; to let them be two Days in one Tub, where the Liquor grows red by the Heat that it contracts there. Some Hours before it is put into the Press, it ought to be trampled with the Feet, and the Juice to be mingled with the *Marc*: without this, the Wine will not be of a sufficient Redness. If it be let stand

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stand more than two Days in the Tub, it will taste too much of the Stone: if it be mingled with the Wine of the Press, it will be too thick, too hard, and too unpleasant.

If they would continue to make good Red-wine in *Champaigne*, they must trample the Grapes as in *Burgundy*, and leave them for three, four or five Days in one Tub: but as the red Wine of *Champaigne* never equals the Goodness of that of *Burgundy*, the Reputation of the grey Wines will sink in a short time, and the Public will insensibly lose the Relish of it, which will bring an infinite Detriment to the Province.

The Wine of the first Pressing being finished, and the Vessels mark'd, they set them in a Row in a Cellar or Court-yard. Those who have a great deal of Wine, and are good OEconomists, take great Care to gather the Scum that comes out of every Vessel, while the Wines ferment, by the means of a kind of tin Funnel, made bending downwards, which lets the Scum fall into a wooden Bowl, which is placed between two Casks; they afterwards put these Scums into the Wines of the Press; but nevertheless there are but few that use this Piece of OEconomy.

They let their grey Wines stand to ferment in the Casks ten or twelve Days, because these Wines throw out their Ferment so much the more or less slowly, by how much they have more or less Warmth, or as the Years are more or less hot.

After the Wine has done fermenting, they stop up the Vessels at the great Bung-hole, and leave on the Side forward an Opening, about the Bigness of a *French Farthing*, by which one may put in his Finger; this they call *le Broqueleur*: and

they stop this up ten or twelve Days after, with a wooden Peg of about two Inches long, for the more readily taking it out, and putting it in.

All the while the Wines are fermenting, the Vessels are to be kept almost full, to give them an Opportunity of casting out all that is impure. In order for this they must be filled up for three Days, within two Fingers of the Bung; after they have been bung'd up, they must be filled up every eighth Day, at the little Hole, for the Space of two or three Weeks more; and after that, once a Day for fifteen Days during one Month or two; and after that once every two Months, as long as the Wine remains in the Vault, if it be there for Years.

When the Wines have not Body enough, or are too green, as it often happens in moist, cold Years, and when they have too much Liquor, as in hot and dry Years; three Weeks after the Wines have been made, they must be rolled in the Casks five or six Turns, to mingle them well with the Lees; and this must be continued every eight Days, for three or four Weeks. This Mingling of the Lee with the Wine, being repeated, will strengthen, soften, and render it more forward, making it fit to drink in as short time, as if it had been transported from one Place to another.

These Wines must be let stand in the Cellar till towards the tenth of *April*, when they carry them down into the Vault; but as soon as it begins to be cold, they are to be carry'd up again into the Cellar: it is of Consequence to be observ'd, upon this Subject, that the Wines ought always to be in cool Places, and never to suffer the Heat. And as the Vaults are cool in the Summer,
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and warm in the Winter, as soon as it begins to be hot, the Wines must be carry'd down, whether they be in Pieces or in Bottles, into the Vaults; and when it begins to be cold, they must be carry'd up into the Cellar.

There has been nothing better invented, and more useful, than the Manner of Drawing off Wines. Certain Experience convinces, that it is the Lee that spoils Wines; and that they are never better, nor more lively, than when they have been well drawn off, whether you would bottle or keep it in the Pieces. It ought always to be drawn off out of one Vessel into another, at least twice into another Vessel well washed, leaving the Lee in the former.

You should draw off the Wines the first time towards the middle of *December*; the second towards the middle of *February*, and to fine them in *March* or *April*, eight Days or thereabouts before you bottle it. For every Piece of Wine you must have of Isinglass, that is the whitest, of the Weight of a Crown of Gold, weighing two Deniers fifteen Grains, or sixty-three Grains. They take so many times the Weight of a Crown of Gold as they have Pieces of Wine to draw off; they put this Quantity of Isinglass into one or two Pints of the same Wine in a Bucket for a Day or two, to give it time to dissolve; others put it into a Glass, or a Pint of Water, according to the Quantity, in order to hasten its dissolving, which is always difficult to be done; some mix it in a Chopin or Pint of Spirit of Wine, or excellent *Aqua Vitæ*: when the Isinglass is grown soft, they handle it well to divide and distribute it; then, when the Parts begin to separate, they put into the Bucket or

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the Vessel in which this Dissolution is made, so many Pints of Wine as they have Casks or Pieces to draw off; then they handle the Isinglass well again, and pass it through a Strainer, the Holes of which should be very small. They often pour in of the same Wine to dilute it well; and when there remains nothing in the Strainer, they pass all the Liquor over again through a Linen-cloth, and squeeze it very well; after which they put one good Pint or less into each Cask, and half into each *Carteau*.

They stir the Wine in the Piece with a Stick about the Middle, without suffering the Stick to go any lower. It is sufficient to stir the Wine for the Space of three or four Minutes.

A certain private Person has newly contriv'd a quicker Method of dissolving this Isinglass: After it has been steep'd one Day in Water, he melts it in a Skillet upon the Fire, and reduces it to a Ball, like a Bit of Paste; and afterwards puts it into the Wine, where it distributes itself with less Difficulty. After what manner soever it be dissolv'd, Care ought to be taken, not to put in too much Liquor, and not to put more than a proportionable Quantity of Water or Wine to that of the Isinglass.

The Isinglass works its Effect ordinarily in two or three Days; tho' sometimes it does not clarify the Wine in six or eight; but nevertheless you must wait till the Wine is clear before you change the Vessel. In the Winter the Seasons are oftentimes so improper for this, that there is a Necessity of putting Isinglass a second time into the Piece, tho' then you must not put in more than the Quantity before-mention'd: but when it freezes, or the

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Weather is clear and cold, the Wine will clarify itself perfectly well, and in fewer Days : it has a Colour more lively and brilliant, than when it is fined and drawn off in faint, moist Weather.

As soon as the Wines are clear, they are to be drawn off, and the Vessels chang'd. Four or five new Casks are sufficient to draw off two or three hundred Pieces of Wine ; for when they have empty'd one Piece, they take out the Lee, and put it into the old Casks, wash it, and it serves to draw off another into it.

Nothing is more curious than their Contrivance in *Champaigne*, to shift their Wines without displacing their Casks. They have a leathern Pipe, like a Gut, four or five Feet long, and about six or seven Inches in Circumference, well sew'd with a double Seam, that the Wine may not run through : there is at both Ends a Cannon or Pipe of Wood, about ten or twelve Inches long, about six or seven in Circumference at one End, and about four at the other. The great End of each Pipe is set in a leathern Pipe, and well bounded with strong Twine on the Outside, that the Wine may not run out : they take out the Bung which is at the Bottom of the Tun that they would fill, and drive the Wood of the Pipe in with a wooden Mallet, which they beat upon a sort of Chin-cloth, that is to each of these Pipes, which is rais'd about two Inches from an Inch or less of the great End, and which loses itself insensibly in going toward the small End : they set a large Syphon of Metal below the Cask they would empty, and also put into this Syphon the small End of the other Pipe of Wood, which is fasten'd to the

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leathern Pipe, and afterwards open the Syphon ; and without the Help of any Person, almost the Half of the full Vessel passes into the empty one by the Weight of the Liquor ; and when it is come near the Level, and will run no longer, they have recourse to a kind of Bellows, of a very particular Construction, to force the Wine from the Cask: they would empty, to pass into that they would fill.

These kinds of Bellows are about three Feet long, and a Foot and half broad ; and are made and shaped in the common manner to about four Inches of the small End ; but from this Distance the Bellows have three or four Inches in Breadth. In the Inside of this Place, the Air passes only through one great Hole of an Inch bore : near this Hole, on the Side of the small End of the Bellows, there is a Piece of Leather, like a Tongue or Sucker of a Pump, which is fasten'd there, and lies close against the Side of the Hole and the Mouth, when the Bellows is lifted up to take in the Air, that the Air which has pass'd once thro' this Hole, and which has entered into the Cask, cannot return back into the Bellows, which takes not back a new Air, but by those Holes below to fill it again.

The End of the Bellows is different from that of others, being closely shut up with a Nozzle of Wood of a Foot long, which is jointed in, glued, and very strongly fasten'd by good Pegs at the End of the Bellows, to conduct the Air downwards. This Nozzle is round and thick without, about nine or ten Inches in Circumference at the Top, and diminishes insensibly towards the small End, that it may enter conveniently into the Vessels by the Bung-hole,

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hole, and also to shut it up so close, that the Air can neither get in nor out any way.

This Nozzle enters for this purpose two Inches, near the Level at the End of the Bellows, and is made in a Half-round at the Top, that it may be beaten in with a wooden Mallet, and forced into the Cask: there is, about two Fingers Length below the Upper-end of this Nozzle, a Hook or Brace of Iron of a Foot long, passing through an iron Ring, which is fasten'd with Nails to the Nozzle, in order by this Hook to fasten the Bellows to the Hoops of the Cask, without which the Force of the Air would drive the Bellows out again by the Bung-hole, and the Operation of emptying the broached Vessel would not be perform'd.

The Mechanism of these Bellows, thus describ'd, is easy to be conceived: the Air enters by the Holes below in the common manner: it advances towards the End, according to the Degree that the Bellows are press'd: there it meets with a Pipe that causes it to descend downwards; but to hinder it from rising up again, as it would do, when the Bellows were open'd to give it a new Air, there is in this Space a Sucker or Tongue of Leather, which, as has been said, is the Inside of the Hole at about three or four Inches from the End of the Bellows which shut up the Hole according as you would have it take in again a new Air: this new Air pushes still gently, in pressing the Bellows in the Pipe, because this Tongue opens according as it is forced by the Air; thus there continually enters a new Air into the Cask, without being able to get out, because it finds itself close stopp'd by the same Pipe that carries

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the Air into it, and the Tongue hinders it from getting up again.

The Force of this Air, which continually pushes in pressing strongly the Bellows, presses equally the superficies of the Wine over the whole Length of the Piece, without causing the least Agitation in the Wine; and the Force causes it to pass down in the Pipe of Leather, and from thence into the other Cask that is to be fill'd; where it rises, because the Air is driven towards the Bung-hole, which is open.

The Bellows push all the Wine in the Cask to about ten or twelve Pints, or thereabouts; which is known when they perceive the Wine to rise in the Syphon; at which time they take from the two Casks the two Pipes that have been forced into them, and which are join'd together by the leathern Pipe, and nimbly stop up the Hole at the Bottom of the Piece with a Bung of Oak made round, a little sloping, and drive it with a Mallet. From the other Cask that has been emptied, they pull out the Cannon or Pipe of Wood from the Fountain of Metal, and leave it to drain gently some Pints of clear Wine into a Vessel that receives it.

They observe attentively, every Moment, in a clear Glass, if the Wine be neat; and when they perceive but the least Thicken, without waiting till it appears foul, they stop the Fountain, and take it away immediately, and turn out into a Bucket that little Wine that remains in the Piece. That clear Wine which has drained out of the Fountain, they put into the Cask that they have been filling: they use for this Purpose a Funnel of Tin, the Tail of which is above a Foot long, to the end that the Wine that passes through it, may not cause any Agitation in that

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that of the Piece ; and that there may not any Filth pass into the Wine, there is, towards the Bottom of the Funnel, a tin Plate pierced through with small Holes, which prevents any thing gross from passing through into the Piece.

They put together into a separate Cask all the Remainders of the empty Pieces ; presently after they have emptied one, which they do in less than half an Hour, they wash it with a Bucket of Water, let it stand to drain some Moments, and then fill it with another that is to be drawn off.

After the Wine has been emptied out of one Vessel into another the first time, they draw it off a second time, at the time we have before-mentioned: sometimes they are oblig'd to do it a third time, to give it a lively Colour, if it has it not already ; but four Days before they change the Cask, they give it a *Frizure*, as they call it, and put in it one third-part of ordinary *Isinglass*.

The most experienced Persons shift their fine Wines out of one Vessel into another, as often as they change its Place, as well when they carry it down into the Vault, as up into the Cellar, according to the different Seasons : I have known when, in four Years time, they have drawn it off twelve or thirteen times ; and they pretend, that this is that which preserves and sustains the Wine, and that it has been the finer and more delicate.

Their Opinion is, That the Wine is continually forming a fine Lee, which gives it the Colour ; and that to preserve it of a good White, it must be often shifted out of one Vessel into another, if it be not put into Bottles ; and that there is no Reason to fear that the Wine will

be weaken'd by this means, because the oftener it is remov'd, the oftener you give it a new Vigour ; and the oftener it is drawn off, the more lively and brilliant is the Colour.

And although I have said, they should not brimstone their Casks, they do not fail to use a Match of Brimstone the first time that they change the Vessels ; they mingle a Piece of thick linen Cloth in the melted Brimstone, and they cut off a Bit for each Cask of fine Wine about the Bigness of one's little Finger, and one as big again for every Piece of common Wine ; they light it, and put it into the Bung of the Piece that they empty, before they have recourse to the Bellows ; according as the Wine descends, it draws along with it a small Scent of the Brimstone, which is not very strong, so as to make it perceivable, and that only leaves what will give it a Liveliness of Colour. The same may be done the second time, when they change the Cask, if it has not taken the Scent the first time ; otherwise it ought to be drawn off the second time without a Match, to cause it to lose the Scent of the Brimstone, which it ought never to have.

The Wines that are thus clear and fine, keep well in the Cask for two or three Years, and hold their Goodness in the Vaults and Cellars, but especially the Mountain Wines that have a good Body : those of the River lose their Quality in Wood, and they ought to be drank in the first or second Year, or else they must be put into Bottles. This Wine will keep very well four, five or six Years in Glass Bottles.

The Use of round Bottles is very common in *Champagne* : they having plenty of Wood in the Province, have there set up very good Glass-houses, which they seldom make

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use of but in making these Bottles, which are about six Inches high, and four or five in the Neck. These Bottles contain ordinarily a *Paris* Pint, or half a Glas less. They sell them commonly for twelve or fifteen *Francs* a hundred. They have a certain Quantity in every House. Before they enter upon a Piece of Wine to drink, they put it into Bottles well wash'd and drain'd, in order to have the Wine of one Piece equally good.

When they have a mind to draw off a Piece of Wine into Bottles, they put in a little Syphon of Metal into the Cask, which is bent downwards to strain it into the Bottle, under which there is a Tub or Bucket to catch the Wine that shall run over. They stop up every Bottle carefully with a good well-chosen Cork that is not worm-eaten, but is solid and close. These Sorts of fine Corks cost fifty or sixty *Sols* a hundred. There cannot be too much Care taken in the chusing Corks, lest the Wine spoil in some of the Bottles, when the Corks are defective; therefore great Care should be taken in the chusing them, when you would draw off fine Wines into Bottles, whether it be for keeping, or to be sent abroad.

When Bottles are used that have been made use of before, they should be wash'd with Leaden-shot, and a little Water, to fetch off the Filth that shall remain on the Bottom of the Bottles; but it is much better, in the room of them, to use small Nails, because they perfectly take off all that which sticks to the Glafs.

When all the Bottles, that suffice to empty one Cask, are fill'd, they tie the Mouth of the Bottle over to the Neck with a strong Pack-thread; and if it be a fine Wine, they commonly seal it with *Spanish* Wax,

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that the Wine may not be chang'd, nor the Bottles, by the Dometics; and some Persons have their Coats of Arms made on the Bottles, which does not enhance the Price above thirty *Sols per Cent*.

When all the Bottles are well stopp'd, ty'd down, and seal'd, they ought to be set either in a Vault or Cellar, upon Sand two or three Fingers Depth, and laid sideways, leaning against one another; when they are set upright, they form a white Flower upon the Wine at the Top, in the small empty Space that is between the Top of the Mouth of the Bottle and the Wine; for the Bottles ought never to be fill'd up to the Top, but there must be left a small empty Space of about half an Inch between the Wine and the End of the Cork.

If this was not done, the Wine would set a working in the different Seasons of the Year, and break a great Number of Bottles; and it does, notwithstanding, break a great many, in spite of all the Caution that can be taken; and more especially, when the Wine has a great deal of Heat, or is a little tart.

In some Years the Wine grows ropy in the Bottles, even in the Vaults, so as to rope when it is pour'd out, as if it had Oil, so that it cannot be drank. This is a Malady that seizes the Wine that has stood several Months without being remov'd from one Place to another: if it be set in the Air, it will lose more of its Ropiness, than it will if left in the Vault: it will recover itself in eight Days, if set in a very airy Granary, better than it will oftentimes do in Months in a Vault.

When one is oblig'd to drink a ropy Wine, if he shake the Bottle strongly for the Space of half a

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Quarter of an Hour, and then uncork it immediately after he has done shaking it, the Bottle being inclin'd a little on the Side, will cast out presently half a Glass of Froth or Scum, and the rest of the Wine will be drinkable, whereas otherwise it would not be so.

For about twenty Years last-past, the Gust of the *French* has been determin'd for a frothy Wine; and this they used to love, as one may say, even to Distraction. They have begun a little to come off from that for the three last Years. Their Sentiments are much divided as to the Opinion of this Kind of Wine: some believe that it proceeds from the Force of the Drugs that they put in it, which makes it froth so strongly: others attribute it to the Tartness of the Wines, because the greatest part that do froth are extremely tart: others attribute this Effect to the Moon, according to the Times in which these Wines are bottled.

It is true, there are a great many Wine-merchants, who seeing the great Fondness that there is for their frothy Wines, oftentimes put in Alum, Spirit of Wine, and Pigeons Dung, and a great many other Drugs, to make it froth extremely; but it is certain, by Experience, that the Wine froths when it is any time bottled from the Vintage to the Month of *May*. There are some who pretend, that the nearer the Vintage-time the Wine is produc'd, when it is bottled, the more it froths. Many do not agree in this Opinion; but nothing is more certain, than that there is no Time in which the Wine froths more than about the End of the second Quarter of the Month of *March*, and this always happens towards the *Holy Week*. There does not need any

Artifice at all; one may always be sure to have Wine perfectly frothy, when it is bottled from the tenth to the fourteenth of the Month of *March*: of this there is such reiterated Experience, that it cannot be doubted.

It is good to know, that the Wine does not froth presently after it is put in Bottles. It must be at least six Weeks, and sometimes six Months before it froths well. If it is to be transported, you must give it near a Month of the Vault, especially in the Summer, to recover its Remove.

But as Wines (especially the Mountain Wines) are not ordinarily bottled in the *Holy Week*, because they are then too green, or have too much Hardness, especially if the Year has been cold and moist, or too much Liquor express'd, if the Year has been hot; the most sure and advantageous way to have exquisite Wine, which is perfectly frothy, is not to bottle it 'till the Rise of the Sap of *August*. It is certain by Experience, that it froths excessively, when it is bottled from the tenth to the fourteenth of *August*; and as it has then lost either the Tartness or Greenness of its Liquor, one may be assured in either Bottles to have the ripest and most frothy Wine.

There has been another Experiment try'd, which is, not to bottle the Mountain Wine 'till the *Holy Week* of the second Year, that is, eighteen Months after the Vintage; and it has been found, that it froths sufficiently, but less by half than that which has been bottled in the Rising of the Sap of *March* the Year before,

It is not believ'd, that the River-wine, which has a less Body than that of the Mountains, can froth so much in the second Year.

When one would have Wine that will not froth at all, it should be

bottled in *October* or *November*, the Year after the Vintage. If it be bottled in *June* or *July*, it will froth slightly; tho' but a little, if any thing at all.

To find in the Wine of *Champaigne* all the Merit that it ought to have, it should be taken out of the Vault not above half a Quarter of an Hour before it is drank, and it must be put into a Bucket, with two or three Pounds of Ice; the Cork should be opened, and put in again lightly; which if it be not done, the Wine will break the Bottle, or will not grow cool, if it were not unstopped; and it would evaporate itself, if it remain'd quite open. When the Bottle has been half a Quarter of an Hour in this Ice, it must be taken out, because the Ice would otherwise chill it too much, and make it lose its Briskness. This Wine will be excellently good, and of a delicious Flavour, when it has been a little affected by the Ice; but great Care must be used, that it may not be either too much or too little.

As these Wines, especially those of the same Year, work continually in the Vaults and Cellars, and still more in Bottles than in the Pieces, according to the different Seasons, and the divers Impressions of the Air, it ought not to be surprising, if the same Wine, especially the new, oftentimes appears different in Taste. We find a Wine potable in *January* and *February*, which will seem hard in *March* and *April*, because of the rising of the Sap, which agitates it more; the same Wine in *June* and *July* will appear intirely soft, and in *August* and *September* we shall find it hard again, of which one shall not be able to perceive any thing during the preceding Months, because the rising of the Sap in

August will put the Parts in a great Motion. This Effect Motion will have on the River-wines of the Year; but oftentimes the Wines of two Years from the Mountains will appear more mellow, more or less exquisite, more or less forward, according to the different Motions it has received by the different Impressions of the Air, which will vary more sensibly in the different Seasons of the Year.

There ought to be a very great Attention to keep the Wine continually in cool Places; nothing does it more Hurt than Heat: it is therefore of the greatest Importance to have good Cellars, and excellent Vaults. No Part of the World has so good Vaults as those in *Champaigne*, which is the Reason it is so difficult to find any-where else so good Wines as those of this Province.

Those who would lay up a Stock of Wine, and are able to keep it two or three Years, or whose Business it is to send it into other far distant Provinces, or to foreign Countries, ought to chuse the Mountain Wine; for as it has more Body, it will better bear Transportation than those of the River; and besides, the *English*, the *Flemings*, the *Dutch*, the *Danes*, and the *Swedes*, desire these strong Wines, which can bear the Transportation, and hold good for two or three Years, which the River-wines will not do.

The most noble River-wines are those of *Auvillers*, *Ay*, *Epernay*, *Piery*, *Cumieres*: Those of the Mountain are, of *Sillery*, *Verzenay*, *Taissy*, *Mailly*; and above all, those of *St. Thierry* have the most Reputation. The last has for a long time had the greatest Name, and been the most call'd for; and one may venture to

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to say, that it comes nothing behind the best Wines of *Champaigne*.

By all the Observations which have been made on what is practised in this Province, in cultivating and ordering the Vines, and in fining off the Wines, in bottling and carrying them down up and down into Cellars and Vaults, and from Vaults to Cellars, it will be found that even Persons of good Taste, in the Province of *Burgundy*, *Berry*, *Languedoc* and *Provence*, who are yet very curious and delicate in making Wines, especially for their own Tables, know not so well how to bring it to Perfection as those who are accustomed to make it in this Province; for tho' their Wines have not the Tartness of those of *Champaigne*, yet they are able to make them more clear, fine, and light. They might therefore try if they would not be preserv'd better in drawing them off from their Lee, than in letting them lie on it, according to their usual Custom, which some are of Opinion is absolutely wrong. They should chuse and pick, in the Fresh of the Morning, their finest black Grapes, and those whose Berries adhere the least together, because they are the ripest; and they should observe to leave as little Stalk to them as may be; and with regard to Pressing, which they are usually faulty in, they should immediately, as soon as carry'd, trample every Load of Grapes successively as they are brought in; and collecting the first, must put it in new Casks of a less Size: and when they have finish'd treading the Remainder of each Carriage, they should put them into the common Vats; but let them not remain there so many Days as they are generally used to do, that so their common Wines may be thinner, and less strong. By this

Management, they might make four, five, or six Pieces of fine Wine, more or less, according as they shall find it good; and then they should take the same Care as has been said those of *Champaigne* do: and if they would be content now with a less Produce, they would have a far greater Quantity the following Years, and would be continually bringing it to a still greater Perfection, as they improved more and more in Experience. In those Countries where they can conveniently have Presses, they should make them.

Their Wines would be more delicate, more light, and less colour'd, by this Attention; and with half the Fining, would be better for Transportation, in drawing them from the Lee, and especially if they are put into Bottles.

There are some Districts or Cantons in the South Provinces of the Kingdom, where the Earth is very fine, which would produce exquisite Wine: it would not, indeed, have the Tartness which those of *Champaigne* have, but then it would have another very pleasing Flavour that those have not.

All these Observations, which we have made, will be of great Use to those Persons who would improve their Wines, or desire to drink delicious Liquor: but such Persons must remember, that they ought above all this to study to have good Vaults; and those which are coolest in the Summer, and warmest in the Winter, are ever the best.

It may seem to many Persons in this Country, that we have been too prolix in the Account we have given; but these Observations are not design'd for those who are acquainted with the Practice already, but for such Persons as are wholly ignorant of these Things, and who are so far

from taking any Pains in the ordering their Wines, that it is a Trouble to them to conceive the greatest Part of those Things which I have taken notice of, to be necessary ; and who cannot be persuaded but that they observe every thing requisite to the proper Management of Wines, as exactly as those of *Champaigne* do.

The Method practised in the making Wine in Burgundy.

The Grapes being come to Maturity, the Magistrates give Notice a few Days before by a Trumpet to the Town, of the Time they have appointed and fix'd for gathering the Vintage. *Volnet* begins first, a Day before *Pomard*, and afterwards all the little Hills gather their Vintage indifferently ; for after the Town of *Beaune* has gather'd their Vintage one single Day, the Vintage is open'd for all the other Vineyards on the Side of *Burgundy*. It will be seen by-and-by, why *Beaune* decides the Vintage of *Volnet* and *Pomard*. It will scarce be believ'd, that all the Hills from *Chamberry* to *Chagny* should have their Vintage gather'd in the Space of four or five Days ; and also it is scarce credible, what a vast Number of *Mountainiers* from every Part come to labour in this Work.

It will be proper here to observe, that in this great Extent the Vineyards produce but one kind of Grapes, which they call *Noirons* ; the Berries of which are black when they are ripe, and quite round : the Plain and the Backsides produce only a Sort of Grape, of which the Berries are bigger and a little longer, which they call *Gamet*.

Those who would make excellent Wines, never cut the Grapes till after the Sun has dry'd up the Dew

which has fallen in the Night-time ; for this Moistness, although it be but a rarefy'd Air, cools the Grapes, which being cast into the first Vat, suspends, and oftentimes hinders the Fermentation. Those covetous Persons, who are more desirous of the Quantity than the Quality, use not these Precautions ; but, on the other hand, those who would make excellent Wines, do not put into the same Vat any Grapes but those of the same Vine ; but almost all the particular Persons who have an hundred Perches of Vineyard in different Cantons, mingle their Grapes the one with the other, because the strong helps the weak, and the good mends that which is worse ; and, in a Word, that they may make the Vat the larger. The Choice of the Cantons from whence the Wine is produc'd, depends on the Discernment that the Courtiers or Commissioners ought to have, when they taste the Wines that they would send into other Countries, and that which the *English* Gentlemen ought to recommend to their Commissioners who furnish them with Wine for their drinking.

The Grapes, being put into the fermenting Vat, throw up a great Scum, which, by the Agitation, make to the Ears a continual Trembling, a little Cluttering, and spread abroad such a Scent, as is capable of intoxicating, and perfumes the Houses, and spreads itself all over the Town.

They do not let the Grapes lie still in the Vat ; they stir them and disturb them : the Labourers trample them briskly three different times, for the Space of two Hours each time. And to give a clear Idea of the Manner of treating the Grapes in the Vat ; as soon as they begin to ferment in the Vat, they tread

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tread them for two Hours at the least; six Hours after they tread them again for as long time as before; and six Hours after that they tread them the third time; and after that they put them under the Press.

It must be observ'd, that the Grapes of *Volnet*, of *Pomard* and *Beaune*, being fermented in the Vat in the Field, cannot be let stand above twelve or eighteen Hours there; those of *Pomard* a little less; those of *Beaune* so long, or a little longer, according to the Delicateness of the Ground, and the Heat of the Grapes: For there are Vineyards behind the Hills of *Beaune*, the Grapes of which don't begin to ferment till after they have been eight or ten Days in the Vat. *Note further*, That to give a Colour to the Wine, this depends on the Time, more or less, that it is left in the Vat. As for Example, The Wines of *Volnet* have the Colour of a Partridge's Eye. This is the Cause they do not leave the Grapes of this Ground but a very little time in the Vat; and if they should let them be there but a little longer than they ought, the Wine would lose its Delicacy, and would taste of the Grape-stone or the Stalks.

After the Grapes have been, according to their Quality, more or less time in the Vat, and have been trodden, there swims over a Liquor that they call *Surmou*. They have Casks of six-score Pots, or half Hogheads of sixty Pots ranged upon Chantiers, or Stillings for Hogheads, into which, by equal Portions, they cast in this first Running; and afterwards they put the Grapes that remain on the Press, when the *Surmou* has been drawn off: and when these have been well-press'd, all the Liquor that comes from them is equally

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distributed into those Pieces where they have already put the unpress'd Wine: and then they open the Press, and afterwards with a Planer they cut the pressed Marc three or four Fingers Thickness round about, and put the Parings in the Middle, and afterwards press it again; then they cut it again, and press it the third time; and all the Liquors of these different Pressings are equally distributed into the Tuns till they are full.

Upon which it ought to be observed, that the unpress'd Wine is the most light, delicate, and least-colour'd Liquor; that which comes of the first Cut of the Press the most racy; and that which comes from the second and third Cut of the Press is more hard, red, and green; so that these three Sorts of Qualities, being united, make a Wine much better, more durable, and better-colour'd.

All these Pieces or Tuns being full, they leave the Bung open, and the Wine in a Fury shakes and agitates itself in such a manner, that it sends all over the Cellar Fumes that will intoxicate, and which are in such Motion, that a lighted Candle, being carried thither, will be extinguished: And if this Wine be put in an Essay, and be shaken a little with the Hand, and you stop the Neck with your Thumb, the Essay will break in a thousand Pieces.

In *Burgundy*, that which they call an Essay, is a little round Bottle, in Length about three or four Inches, and about two in Circumference, which grows less all of a sudden at the Top, in order to form a little Neck open, having a little Rim to receive the Wine and the Cork.

The Wine having cast its Fire and Scum out of the Casks; eight Days after they fill them up again, and

and stop them up with a Vine-leaf, which they spread over the Bung: and lest the Vapours of the Wine should move this Leaf out of its Place, they lay a little Stone upon it to keep it down; because if they should put upon it a Seal or a Bung, the Wine, not having Air, would push the Head of the Casks out. Five or six Days they seal it, and near the Bung they bore a Hole, and stop the Hole which the Gimlet has made in the Tun with a little Bit of round pointed Wood, which they call a Faucet, which they take out from time to time to let the Spirits evaporate; which Precaution prevents the Wine from bursting the Vessel.

This is the Time when at *Beaune* are to be seen Merchants from all the Corners of *Europe*, who come to secure the best Vats for their Kings, Princes and Masters.

The Commissioners and their Wine-conners prove the Wines, although they are not yet drinkable. The Commissioners are the public Managers, to which all those who would have the Wines of *Burgundy*, address themselves either by Letters or in Person. These are the Judges, which from time out of Mind, from Father to Son, have certain Experience of all the Vaults; who know the Climates, Closes and the Cantons from which they are produc'd, and all the good Cellars; to whom it is sufficient to write what Quantity of Wine one would have, and of what District or Canton one would have it; and provided they have the Purchase-money paid in the Space of the current Year, one may be sure to be well-serv'd.

These Managers having receiv'd all the Commissions from private Persons, go to the Citizens, and fill their Essays of the different Vats

which they find in good Cellars; and with the Tickets that they tie to the Neck of every little Bottle, with the Name of the Vat, or the Quantity of the Pieces of Wine which they contain, they carry them to their Houses, and let them be unstopp'd; they examine and attend them carefully, and by the different Changes, Taste and Colour, they see the future Colours and Qualities of the Wines that are in the Tuns from which the Essays are taken. They also make yet another Proof with the Wine which is in the Essays: they take Glasses, upon which they put a sinking Paper, which they spread, and which juts out over the Glasses, and press their Finger to make a Concavity; which may contain a fourth Part of a Glass of Wine. The Liquor passes by little and little, and filters through the Paper, and strains Drop by Drop in an imperceptible manner into the Glass which receives it. By the Sight of the Wine which passes through this Paper, they make good Conjectures founded upon a long Experience concerning the destined Taste, of the Colour, and the Lastingness of the Colour of the Wines they have proved.

The Commissioners having made their Purchases according to the Orders which they have receiv'd from their Correspondents and Merchants, they make Preparations to send them according to their Orders: and as to the Price of the Purchase, they cannot deceive any Person without running great Risques; for if they should make those which send for these Wines pay more for them than they can buy them for in the Cellar, they would expose themselves to Hanging by an Arret of the Parliament of *Burgundy*, who have made a Law for the assuring the

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the Fidelity of Commerce of those Wines; which orders, That the Commissioners shall take one *Sol per Livre* for as much as comes to sixty *Livres*; and for what exceeds this Sum, they shall not take more than six *Deniers per Livre*. Thus a private Person, who shall receive for six hundred *Livres* of Wine French Money, shall pay three *Livres* to the Commissioner, for what he shall have sent above sixty *Livres*; and for the five hundred and forty which are over and above, for which he is to pay the Commissioner, he shall not demand more than six *Deniers per Livre*, which will be the Sum of twelve *Livres* six *Sous*; which being added to the three *Livres* above, make the Sum of fifteen *Livres* ten *Sous*; a Sum which would amount to twelve or thirteen Shillings, according to the Exchange: and for this small Profit, the Commissioner is oblig'd to advance his Money to the Citizens of whom he buys the Wines; and that too, when he does not receive his Payment from the Persons to whom they are sent, as it sometimes happens: and the Commissioner that shall be convicted of taking more, whether by Books or other Proofs, will be punish'd, as has been said above.

The Commissioners having purchased and proved their Wines, according to the Orders they have receiv'd, they cause the Tuns to be new-hoop'd, and put Bars surrounded with Pins of Wood of the Aspen-tree, and mark them with the Town Mark: and it ought to be observed, that no other Country has a Right to imitate or counterfeit their second Hooping; and for the greater Surety, they put upon every Cask the Fire-mark, which is a B on the Top, two Inches in Length, with the Cypher of the Year in which the

Casks were sent from *Beaune* to go to any other Place.

These are the Precautions that are taken at *Beaune*, by which the Wines that come from thence cannot be mistaken: a Caution otherwise not very necessary, since they manifest themselves so plainly by their Delicacy and their Superiority above all other Wines in the Universe: they are besides very beneficial and proper to establish and to preserve Health; in this surpassing the Wines of *Champagne*, which flatten the Taste, and grate the Palate, but which weaken and extenuate, enervate, and render dull, as one may say, the most healthful Bodies; and which also, according to sad Experience, and the Writings of the Learned, which I have read, breed the Gravel, the Gout, and the Stone.

The first Article of the Wines of Primeur, or the Forward Wines.

We call that the Wine of *Primeur*, which will not keep good more than one Year, or that can be kept but a few Months in the second Year.

The first Wine of *Primeur* grows at *Volnet*, which is a Village situated about three Miles from *Beaune*, upon a Descent of a Mile in Height at least, and two Miles in Length on the Side which is exposed to the rising Sun. This Village, as well as *Pomard*, have their Dependence on the City of *Beaune*: since the Citizens have been their Lords, as I have said before, these two Plots of Vineyards have been obliged to receive the Law of their Vintages from the Magistrates and Sages named for this Purpose.

This Hill produces the finest, most lively, and most delicate Wine of *Burgundy*. The Bunches of Grapes of the Vineyards of *Volnet* are very small,

small, as well as the Berries; the Branches rise scarce above three Feet high through the whole Year; the Grapes of it are so delicate, that they won't bear the Vat more than twelve, sixteen, or eighteen Hours; for if they be suffered to stand longer, they would take the Taste of the Stalk.

The Wine is in Colour a little deeper than the Eye of a Partridge: it is full of Fire, strong, light; it is almost all Spirit; it is, in short, the most excellent of all *Burgundy*, which by reason of its Violence is not traded in; but its intoxicating Quality is soon dissipated. The Duration of this Wine is from one Vintage to another, though it perishes at the Beginning of the *Dog-Days*; after which it changes its Colour, and is turned: but yet I doubt not but that it would keep longer in very cold Vaults. The finest of their Vats is drawn from a Canton of Vineyards, that is called *Champan*.

Pomard is the second Plot of Vineyards of the *Primeur*: it is situate between *Volnet* and *Beaune*, not quite so high as the first, and a little higher than *Beaune*. It produces a Wine that has a little more Body than the preceding, and it is of the Colour of Fire, and has a great deal of Perfume and Balsam: it will hold good some Months longer than that of *Volnet*: it is more merchantable, and better for Health: if it be kept above a Year, it fattens, ropes, it wastes, and becomes of the Colour of the Skin of an Onion. The best Vat is that of *Commaraïne*, that will sometimes keep eighteen Months, but that is according as the Year is.

The City of *Beaune* contains one very considerable Plot of Vineyards; it consists only of four Hills, which are about four Miles in Length from *Pomard* to *Savigny*. The first of

these Hills is called *St. Desire*, the second the *Montée Rouge*, the third *Les Greves*, and the fourth, the *Fountain of Marconney*. These different Soils produce Wines which participate of those of *Volnet* and *Pomard*, without the Faults of them; they have a little more Colour, many good Qualities, and Lastingness.

The Wines of *Beaune* last some more, and some less, but they don't last above two Years; they are sweeter, more agreeable, and more merchantable, than the two preceding, and much better for Health. The Colour of these Wines is not equal, because that depends much upon the Manner of making them; or that they let it remain more or less Hours in the Vat, according as the Climate is more or less delicate where it is made. There are in these four Hills certain inclosed Cantons, which are in great Reputation. The *Fèves*, the *Cras*, the *Greves*, as also the *King's Inclosures*, are very delicious.

Aloffe is the fourth Vineyard of the *Primeur*; it is situated upon the Declivity of a Hill about three Miles from *Beaune*. This Valley is an Ascent so gentle, that one can scarce perceive one ascends, till one has come to the Top of it. This little Village produces Wines of an extreme Delicacy: they are less brisk than the former, but of a Taste more flattering: the Colour is a little more soft, and less sparkling, but fine; and, like the Hill that produces it, the Wine is too little elevated, and too much declining: it partakes neither of the Firmness, nor of the Stiffness, of the Wines of the Height of the Hills: it has all the Tenderness, nothing of the Hardness, and of consequence is subject, in a little while, to grow ropy, and to take the bad Quality of Sweetness; nevertheless it is sent to foreign Countries,

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but it requires much Choice and Judgment.

Pernand, which is between the last Vineyard and the grand Vineyard of *Savigny*, is of a greater Extent, but is of small Account, the Wines being not very delicate: they are of the Quality of the precedent Vineyards, but harder and firmer, because they are produced upon a Hill that is higher and steeper. There are some Vats very delicious, and these go into other Countries, but under the Name of *Beaune* Wine.

Chassagne is not very considerable for its Extent, but is of greater Reputation for its Wines. This, in my Opinion, would be more fit for *England*, because it would better bear Carriage by Land and Sea. It is extremely strong, full of Fire, and heady. It is commonly tart, which renders it more durable than the others: but if Persons have Skill and Leisure to bottle it in the proper time, and to drink it when its Tartness begins to fall, it is one of the noblest Wines in the World. If I had the Office of providing the King's Wine, I would go into *Burgundy* to chuse it; and in chusing the Wine of this Climate, I should be likely to succeed. This is the only Wine that one may leave in Bottles without Fear of its becoming ropy, or changing its Colour, or growing eager, or turning. The longer you keep it, the better it is.

It is more balmy and nourishing, but nevertheless you may not prescribe above three Years for the Bounds of its Duration. It will be fit for drinking at the End of the second Year; sometimes it lasts four Years, when the Vintage has been very good.

This is in the Rank of Wines in

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the *Primeur*, though its Duration is a great deal longer.

Savigny is a great Extent of Ground between *Beaune* and *Pernand*, situated in a Valley formed by the Separation of two Mountains. As the Hills that compose this Vineyard are open to the rising Sun by a great Space, and as they are shut up as they approach to the setting Side, they participate of the Rays of the Sun one Side obliquely, and on the other directly. This Soil produces excellent strong, racy Wines, which have both Body and Delicacy, when they have been drawn out into Bottles; but they must be visited now-and-then so as not to let slip the Time when they should be drank. This would be a very good Wine for *England*; it will keep as well, and better than *Chassagne*: it is not so delicate, nor so brisk; but it is more oily, and very good for Health.

Auxey is pretty near of the same Situation, in a Corner between two Hills, which open themselves to *Mulsault*, or as far as *St. Romain*, where may be seen high Mountains crowned with very high Rocks. This Vineyard produces Wines more red and stronger than those of *Savigny*, but they have not the Reputation of them. These Wines have more Body than the preceding, and ought to be the Drink of all those Gentlemen that would not shorten their Days by drinking those heady sparkling Wines, an Excess in which is so dangerous.

The second Article, of the Wines de Garde, or those which will keep a good while.

Nuis is a very small Village, about nine Miles from *Beaune*, in the Road to *Dijon*. The Territory of

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of this Village contains between four and five Miles in Extent. All those Gentlemen that love the most delicate and healthful Drinks, have the Wines of the Hills of *Nuis* for their Tables. These Wines are at first very rough, sharp, and tart: they require to be kept till their second, third, fourth and fifth Year; and when their Roughness and their Hardiness is gone, their Tartness being fallen, there comes in their Place a Perfume and Balminess very delicious. They are of a deep velvet Colour, and yet neat and brilliant. *Lewis* the XIVth drank no other Wine.

The Close of *Vougeot* is situated a League from *Nuis* on the Side of *Dijon*; it appertains intirely to the Monks of the famous Abby of *Cîteaux*, built between the *Saône* and this Hill. The Wine which it produces, comes nearer to that of *Chassagne* than to any other. It is very excellent, and is drank in foreign Countries.

Chambertin produces, to my Liking, the most valuable Wine of all *Burgundy*. It is situated between *Dijon* and *Nuis*. It contains the Qualities of all the other Wines without their Faults. This is what one need be but little solicitous about. I have drank it six Years after it has been produced, and it poured troubled and thick into the Glafs, but grew clear immediately, and by its Motion recovered its Spirits, and a Colour the most lively and neat: and they also sell it as dear again as the other Wines of *Burgundy*. It was sold the last Vintage but one, for forty and forty-two Pounds *Sterling* the *Chantier*, when the Wines of *Volnet*, *Pomard* and *Beaune*, sold for not above twenty Pounds *Sterling* a *Queüe*, which contains, as I have

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said before, four hundred and eighty *Paris* Pints.

The third Article, of White-wines.

Before I begin to treat on White-wine, it is proper to let you know that it is made from a masculine Kind of Grape. This has two Qualities, that the Grapes of the other have not. The first is this: that if the Vintage be late, and that the white Frosts and great Cold come, it resists the hoar Frosts; while the black Grapes grow sour, withered, and shrivell'd immediately.

The second is, that as soon as these white Grapes are cut, they must be put into the Press without entering the Vat, and without being trod as the black Grapes are; for if they were put there, they would give only a livid, ruddy, yellowish Liquor. I thought myself obliged to acquaint the Public with that.

Mussault is, after *Beaune* and *Nuis*, the largest Vineyard of *Burgundy* in Extent; its Wines are generally approved in *Germany* and the *Low-Countries*, and throughout all *France*; I know not whether they are so in *England* or not. The Wines which this Soil produces, in all hot and dry Years, are delicious, sparkling, agreeable, warm and beneficial: they are not dear; and if they are well-chosen, they would be an Honour to *England*, and Pleasure to those that drank them. When they are kept a Year and half, they sometimes grow yellow and eager.

Puligny is a Vineyard next to *Mussault*, but much more in the Plains, which produces the best White-wines; they are, within a very little, of the same Quality with the Wines of *Mussault*, but their Fame is not divulged, and the Name is almost unknown.

Aloffe,

Aioffe, of which I have spoken in the Article of the first Wines, produces also excellent Wines.

Morachet is a little Plot of Ground between *Chassagne* and *Puligny*, in the Plain, which is in the Possession of one Vein of Earth, which renders its Soil wholly of the same Kind; it produces a White-wine the most curious and most delicious in *France*; there is no Wine of *Cote Rotie*, *Muscat*, nor *Frontignan*, that equals it. It produces but a very small Quantity, and it sells very dear; and in order to have a small Quantity of it, it ought to be bespoke a Year before; because this Wine is always bespoke before it is made. But great Caution is to be taken not to be deceived; for the neighbouring Vineyards of this Close partake a little of the Quality, and oftentimes pass for *Morachet*, and therefore it will be absolutely necessary to have a faithful Correspondent. This Wine has those Qualities that neither the *Latin* nor the *French* Tongue can express: I have drank of it six or seven Years old, and am not able to express its Delicacy and Excellence.

I am now going to treat concerning all the Vineyards of the *Upper Burgundy*; those who have passed the grand Road that leads from *Dijon* to *Lyons*, the Length of the Hills, will do Justice to my Exactness; and I desire those that have not been there, to believe that this Relation is agreeable to Truth.

I have an hundred times heard Boasting of the Wines of many Hills near *Auxerre*, to which they give the Name of the Wine of *Burgundy*: it is true, those Hills are in *Burgundy*, but they are ninety Miles distant from the true Hills, of which I spoke just now, which only produce these Wines of *Burgundy* which

are in Reputation, and which they drink after two Manners, by the Nose and by the Mouth, either both at once, or separately; both at once, in that when one drinks them, the Pleasure which he has in the Smell vies with the Relish it has on the Palate; and separately, so that a Person that has been used to drink it, may know whether it be true *Burgundy* or not, by the Smell, or sweet Odour. The good Tasters taste it by their Nose, before they put it to their Mouths; and all the other Climates of *Burgundy*, as those of *Chablis* and *Auxerre*, have no such Quality as the true Wines of *Burgundy* have, although they are really made and produced there.

It remains for me to relate how these Wines may be brought to *England*. It has always been the Custom to bring those Wines from *Burgundy* in their Casks; but as the Carriage is long, and there is oftentimes a Risque run, so the Carriers, as well by Land as by Sea, are not always faithful; for notwithstanding all the Precaution that can be taken to hinder them from drinking the Wine, they will always find out Statagems to do it. If it be packed up in Casks with Straw, and linen Cloths, this is but a feeble Obstacle to their Industry: and for all this Precaution, if the Cask happens to leak by the Way, this will be at the Peril and Loss of the Purchaser. If these Wines be put into double Casks, this Precaution will have no better Success than the foregoing, and it is exposed to the same Risque; and the Casks at the Vintages are a great Prejudice to these delicate Wines, because this gives the full Scope to the Spirits to evaporate; and of consequence they will cause a great Diminution of the Quality of the Wine.

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It ought to be brought in Bottles from *Beaune* to *London*: for this Purpose, some Agent, who buys the Wines by Order of the Person, should be addressed to, to draw it out into Bottles, and to send in it Cases into *England*. These Cases being fill'd, need but be carried by Land aboveninety Miles to *Auxerre*, where they may be imbarqued on the River *Yone*, which passes into the River *Seine*, and from thence to *Paris*, and afterwards to *Rouen*, where are Vessels which pass very often to *London*.

If one would have them come from *Beaune* to *Calais* by Land, that will also be easy; for there are Carriers that go thither very frequently, who would go very willingly, provided they could have Cases enough to load their Waggon.

The Agents of *Beaune* would also be very well pleased to bottle the Wine that they were ordered to buy, provided their Correspondents would give Orders for enough to make a Carriage: as for Example, if two or three Persons would join to give Orders for a thousand Bottles, this would be a complete Carriage: and as those of *Volnet* draw their Wine into Bottles at the End of *December*, a Person that would have five hundred Bottles of *Chassagne* or *Nuis*, ought to join with another that would have the like Quantity. The Agent might bottle up these Wines a Year after the Vintage, either more or less; and the Purchasers might receive the Wines of *Burgundy* exquisite and delicious, and in like manner all other Wines that they have a mind to have. As to the Price of the Wines of *Beaune*, *Volnet*, *Pomard*, *Chassagne*, and *Nuis*, it is pretty near equal, or at most the Difference is not very great. A *Queue* of *Volnet* Wine contains four hundred and

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eighty *Paris* Pints, which will make five hundred Bottles, and will cost in the Country, some Years, ten, twelve, fourteen or eighteen, and at most twenty *Livres Sterling*. The Carriage may cost from *Calais* to *London* a very small Matter: so that, taking the Years one with another, the dearest Wine of *Burgundy*, except that of *Chambertin*, which is the dearest, would scarce, in *London*, stand in fourteen or fifteen *Sols* a Bottle, the Entry not being reckoned in.

The Method of making Wine in Provence.

The Delicateness of the Taste of Grapes is not always a certain Proof of their Goodness for making Wine: it is not always with these Grapes so agreeable to the Taste that the best Wines are made: we should not be surprized that our Wines are not the most exquisite, since we do not observe any Rule in the Choice of the Grapes, which ought to be done. It is certain, that the Juice of Grapes of different Kinds cannot but produce a confused Mixture, which suffers divers Alterations in the Casks, by the different Fermentations, which the sulphureous Particles of the Grapes excite there, by which they suffer themselves to be very easily opened at the Approach of the Heat. This is what happens to Wines which have been made of a Mixture of many Kinds of wild Grapes. Experience informs us, that Wine drawn from such Grapes is very subject to ferment and grow foul, as soon as the Heats of the Spring begin to approach, which does not happen in the Winter, when the Coldness of the Air holds it, as it were, bound and embarrassed by the sulphureous Particles of the Wine.

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It is the same thing in the Juice of the Grapes called *Clarets*, *Plan Estrans*, *Pignoulets*, &c. when they are mingled in too great a Quantity with the others. The common Fault of our Wines is, that they cannot be kept the Year throughout; they are apt to grow foul, or turn, as it is called, upon the least Transport.

The greatest Part of our Citizens believe it to be the Fault of the Soil, principally the Vineyards planted in the Places where Plaster or transparent Stone is made, under which is contained all that Extent of Ground, which begins from *R. P. Capucins*, as far as *Aguilles*, which they commonly call *Payblanc*, i. e. White Country. But how many Vineyards have we planted in different Soils, that are subject to the same Vice? It is generally agreed, that the Soil which they call [*Gres*] Grey, is the best for Vineyards: Nevertheless, it is found, that the Quarter of *Molieres*, of *Repentance de Barret*, of *Montaignez*, are not exempt from this Vice. I am of the Opinion, that it proceeds from the Mixture of too great a Quantity of different Sorts of Grapes. I cannot deny, after Experience, but the Nature of the Soil, the Culture, and the Dung they use, contribute very much to this Vice, which is what I shall hereafter examine into.

Therefore it is necessary to know, what Grapes are fit to make good Wine, that may be in a Condition to be kept without being foul, or turning, and how to make it.

It is very true, that a Person cannot make from one Vineyard a great Quantity of Wine, that shall be at the same time good in Quality. A Vineyard ought to be planted on those high Grounds or Hills, which are exposed either to the South or South-west;

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and the Soil ought to be a Sort of Brown, or approaching to it. Those which we call *Arpielo*, *Malause*, *Saveon*, are Soils which are scarce proper to nourish Stocks that will produce Grapes for making good Wine. The Vineyards which are round about the *Peres Augustines Reformez*, commonly called *Saint Pierre*, are planted in a Soil of *Saveon* aforesaid, very unfit for producing Grapes of a delicate Relish, or for making good Wine.

The Entrance into the Territory of *Tholonet* is, for the most part, a Soil which our Country-people call *Malause*; and also the Wines that they produce are none of the best.

Those Grapes ought to be chosen, which grow upon Stocks that are planted in a Soil somewhat rocky.

After the Culture, it is very certain that good Wine cannot be drawn from Grapes that have too much Nourishment, and of which the Sap has not attained the last Degree of Concoction or Ripeness.

Those which we call *Ollieros*, which are commonly dunged, and which they cultivate with Pains, do give a great Quantity of Grapes, but their great Nourishment is an Obstacle to their making good Wine. Those which we call *Open Vineyards*, are to be preferred to them.

We ought also to prefer the Grapes of old Vineyards to those of young ones. The proper Vineyards for making good Wine, are those which have been planted twenty-five or thirty Years; the older they are, the more proper they are for making good Wine; and till the Vineyard has been made seven or eight Years, good Wine ought not to be expected from it.

As to the Choice of Grapes, we ought to mix some of the best Sorts

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that we have. These Kinds are, of the white Grapes, the *Aragnan*, the *Reudeillat*, the *Paseau Blanc*, the *Estrani*, the *Uni*, the *Aubré*; of the black, the *Catalan*, the *Bouteillan*, the *Uni Nègré*. The Must that is drawn from these Grapes ought to ferment in the Vat at least three Weeks; when the Husks must be separated from the Must. It is a common Error in this Village, not to let the Wine ferment long enough.

It ought to be noted, that the Proportion which should be kept between the Quantity of these Kinds is different, according to the Design which every one has of keeping these Wines.

The black Grapes, and above all the *Catalan* and the *Bouteillan* should make more than half the Quantity of all the rest.

Those that desire to have a Wine of a deeper Red, should take a greater Quantity of black Grapes, and ought to let them stand a longer time in the Vat, if they have occasion to change the Wine from time to time.

They make White-wine of the Grapes they call *Aubier*, *Uni*, *Roudeillat*, *Aragnan*, *Pignolet*. If they would have Wine proper to keep in the Heat of the Summer, they ought to use none but *Uni*, *Aubier*, and *Aragnan*.

Nobody is ignorant that we have Wines that are made but of one Species of Grapes; as that of *Muscat* Wine, and *Claret*: For the first, they make use of *Muscats*, as well white as red; for the second, of the Grapes they call *Clareto*.

They keep these Grapes with us during the whole Winter, and some Part of the Spring, hanging upon a Beam in a Room. All Sorts of Grapes are not fit for keeping; those Kinds that are called *Pendoulans*, or *Rin de Panse*, *le Land de Pouère*, *le Verdaun*, are the best for this Purpose; the *Aragnan*, and *Estrani* are so like

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wife; also the *Clareto*, the *Muscat* and the red *Uni*: the *Barbaroux* and the *Espaguin*, the *Taulier* and the *Roudeillat*, will not keep so long. They ought to be gathered full-ripe, and before the Rains, and none to be chosen but those that grow upon old Stocks.

Nobody is ignorant that the Juice of Grapes fermented in the Vat, and made into Wine, is a Liquor so precious and delicious, that it furnishes us with a medicinal Aliment, and an alimential Physic; the Virtue of which is perceived both in the Body and Spirit. It is not without Reason that it is called *Lac Senile*, i.e. *Old Mens Milk*, &c. and *Fomes Ingenii*, the *Tinder of Wit*, by *Homer*, &c.

Wine is different in Virtue, and Delicacy of Taste. The Difference proceeds for the most part from the different Nature of the Grapes with which it is made, the different Degree of their Maturity, and the Diversity of the Soil where the Vineyards are planted; and also the different Culture of the Vineyards, and the Preparation of the Wine; to which may be added, the Difference of the Climates, according to the greater or lesser Degree of Heat.

The *Romans*, as we learn from *Pliny*, were very curious in searching after the most excellent Wines; all their Differences consisted in the Places where they were made: as the *Setinum*, the *Cæcubum*, the *Falernum*, the *Gauranum*, the *Faustianum*, the *Albanum*, the *Surrentinum*, the *Massicum*, which were the most delicate Wines of *Italy* in the Time of *Pliny*. Among the Wines of *Greece*, they esteemed the *Maronean*, the *Thasian*, the *Cretan*, the *Coan*, the *Chian*, the *Lesbian*, the *Icarian*, the *Sinyrean*, &c. Their luxurious Taste carried them in Search of the Wines of *Asia*, as that of Mount *Libanus*, and

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and others, as may be seen in *Pliny*.

It is to be noted, that the *Romans* had their most excellent Wines from *Campania*, which is now called *Terre de Labour*, a Province of the Kingdom of *Naples*. Those of the other Parts of *Italy* did not come near these last in point of Excellency. The *Falernian*, the *Gauranian* and *Massic*, were made from Vineyards planted on the Hills round about *Mondragon*, at the Foot of which passes the River *Garigliano*, antiently called the *Iris*. The *Cæcuban*, which differs nothing from the *Falernian* but in Age, (this is that which the *Latins* call the Length of Time which the Wines are able to preserve their Strength) was produced in the *Terre de Labour*, as were the *Fundanum* and *Amyclum* near *Gaeta*, the *Suessanum* of *Suessa Pompetia*, a maritime Territory of the Kingdom of *Naples*; the *Calenum* about the Town of the *Terre de Labour*; and also many others, with which that Province furnishes the City of *Rome*.

These Wines, which are very excellent in their Nature, acquired rather by Age than by Art, a Degree of Perfection to which none of the other common Wines of *Italy* can attain.

The last, which the *Greeks* call *Oligophora*, and the *Latins* *Tenuica* and *Paucifera*, are very easily preserved by the Cold, or rather by a fresh Air, and grow eager by Heat. Those also which the *Greeks* call *Polyphora*, or *Multiifera* and *Vinosa*, become more vigorous and spirituous by the Heat.

The Grapes of which the first are made, abound in crude Phlegm; the sulphureous Parts of the Must are more dilated. The last, on the contrary, are drawn from Grapes that

are more ripe; of which the Must or the sulphureous Parts which compose it, are concentrated and fixed by the Evaporation of the humid Parts which dilate it. To this may be added, the abundance of the Sulphur of these last, which is the Cause of the true Strength of these Wines; and it is by being opened that they acquire this Spirituousness. It was only to procure this Opening, that the Antients invented the preparing these Wines in the manner I am going to express.

Pliny informs us, That in the Year 633, from the Foundation of *Rome*, they lodged their Tuns full of Wine in Places covered, which were exposed to the North, such as we now call Cellars.

On the contrary, those Casks which were filled with vigorous and spirituous Wine, such as *Polyphorum*, were set in an open Place, and exposed to the Rain and the Sun, and all the Injuries of the Weather: those which contained Wines of less Strength, were kept under Covert: those which were full of a weak Wine, were put into a hollow Place, and covered with Earth.

Galen, in his Book *de Antidot. Chap. III.* and in the *Treatise of Vines*, that is ascribed to him, remarks very much to the Purpose, That the Wines of the first Order, or *Polyphora*, were preserved two or three Years in these cold Places; but if they let them lie there too long, they grew eager, if they did not remove them to warmer Places; as they used to practise in *Asia*, before the *Romans* had any Knowledge of it: and it was by this means that the People of *Asia*, as well as the *Romans* and *Greeks*, attained to the Art of making Wines keep so long.

The most antient *Epocha* of the Preparation of these Wines among

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the Romans, (as *Pliny* says) was about the Year of Rome 633. This Author, who lived a long time after in *Vespasian's* Time, assures us, That these Wines had been kept for the Space of an hundred Years, and that they grew thick to the Consistence of Honey; so that they could not be drank without mingling them with Water.

He also adds, *Quo generosius est vinum, eo magis vetustate crassescit; i. e.* By how much more generous the Wine is, by so much the more it grows thick by Age: the same that is seen in our Days in the *Spanish* Wines.

This Thickness of the Wines, of which I am speaking, is less extraordinary than that of the Wines of *Asia*, of which *Galen* speaks in his Book of *Respiration*; which being inclosed in large Flasks, and suspended near the Fire of their Chimnies, acquire, by the Evaporation of the Humidity, the Hardness of Salt. What *Aristotle* says of the Wines of *Arcadia*, exposed to the Fire and the Smoak, is yet more surprizing: *Ita exsiccat in utribus, ut dera sum bibatur; i. e.* So dried in the Bottles, that it is scraped off to be drank: it was so solid, that they were forced to scrape the Flasks to drink it, and could not drink it without diluting it with Water.

The Romans prepared their Wines after the following manner: They took the Must that had run from the Grapes that had been trod; they put them into a wooden Vat, of which the Staves had been bound together by Hoops, or flexible Bands.

After the Wine had been fermented all the time necessary for separating the grossest Impurities, they drew it out of the Vat to put it into the Casks, where it continued to ferment; and to assist the Depuration,

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they mingled as much Plaster, or Chalk, or Clay, or Powder of Marble, or of Pitch, or of Salt, or of Rosin, or of Lee of new Wine, or of Sea-water, or of Myrrh, or of aromatic Herbs, as they judged necessary; every Country having its particular Mixture. And this is what the *Latins* call *Conditura Vinorum*.

They left the Wine in the Casks until the Spring following; also many left them till the second or third Year, according to the Nature of the Wine and the Country; afterwards they drew it out, to put it into earthen Vessels, which they smear'd on the Inside with melted Pitch, and marked on the Outside the Name of the Place from whence the Wine was made, and that of the *Roman* Consuls, in whose Consulate it was made. The *Latins* called this changing of the Wine from Casks to earthen Vessels, *Diffusio Vinorum*, or *Vina de-fundere*.

They had two different Sorts of Vessels; the one the *Amphora*, and the other the *Cadus*. *Pancirollus* and others say, The *Amphora* was of a square or cubic Figure; as to the Contents, Authors are not agreed, but most supposed they held about eighty Pounds of Liquor. This Vessel was contracted at the Neck. After it was filled with Wine, they stopped the Mouth close with Cork. The *Cadus* was of the Figure of a Pine-Apple, which is supposed to contain half as much more as the *Amphora*. These Vessels being stopped, were carried into a Room exposed to the South, situated in the highest Story of the Country-house where the Wine had been prepared. This Place was called *Apotheca*.

It was to dissipate the superfluous Humidity of the Wine, that they exposed these Vessels to the Heat of the Sun, and to that of the Fire, and of

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of the Smoak, which has given to this Place the Name of *Fumarium*, because of the Smoak which was gathered by the Funnel, through which the Smoak of the Fire was carried off, when it was lighted below.

These Wines could be kept for two hundred Years, and would, as has been said, arrive at the Consistence of Honey; during which, *Adhuc Vina ducentis fere annis jam in speciem redacta mellis asperi; etenim hæc natura vini in vetustate est*, says *Pliny*, Lib. xiv. cap. 4. So that it is troublesome to drink this Wine because of its Thickness; and in order to render it drinkable, they diluted it with warm Water, to give it a Fluidity, and afterwards they passed it through a Strainer; and this they called *Saccatio Vinorum*, as *Martial* says,

*Turbida sollicito transmittere Cæcuba
sacco.*

It is true, they had other Wines of the same Nature, which they did not pass through a Strainer; as the *Massicum*, which they only exposed during a Night to the Air, to procure a Fluidity and Depuration; as *Horace* says, Lib. ii. Sat. 4.

*Massica si cælo supponas vina sereno,
Nocturna, si quid crassi est, tenuabitur
aura,
Et decedet odor nervis inimicus: at
illa
Integrum perdunt lino vitata sapor-
em.*

This luke-warm Wine had been very disagreeable to drink, if they had not cooled it with Ice or Snow, whether in mingling it with the Wine, or setting the Bottles in Ice: the most Luxurious mingled the Snow with the Wine, and passed it through

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a silver Strainer, which *Paulus the Jurisconsult* calls *Colum Vinorum*.

Of making Wine in Orleans.

The Grapes being cut and carried from the Vineyard to the Press, they tread them either in a Scuttle, which they place there, or in a Vat, when the Gathering of the Vintage is finished; or, in fine, they cast them into a Trough of a Wine-press to be bruised. Sometimes also they carry them directly to the Press; but this is when they would make Wine fit for present drinking, and that it is not at all fermented in the Vat.

Those who make use of a Scuttle to bruise their Grapes, cannot possibly tread the Grapes well, or at least they will be a long time in doing it, and have a great deal more Trouble, in that they are obliged to raise up with all their Strength, the Punchions that they tread, to cast them into the Vat with the *Marc*, in order to work it all together.

The Manner of bruising the Grapes in the Vat when it is filled, is much worse than the first; in that notwithstanding all the Precaution that can be taken, and whatever Time is allowed to endeavour to do this Work well, it is absolutely impossible it should succeed well; for when the Wine has been tunned as much as it ought, and they have put it on the Press with its *Marc*, there will be a Part of the Grapes that have not been half bruised; and this causes the *Marc* to yield less Wine, and there is not all the Colour that it might have; and therefore the Grapes ought never to be bruised this way, when it can be done otherwise.

But if this is a Loss to the Citizens, not to draw from the *Marc* all the Wine which it ought to yield, if all the Grapes had been well bruised;

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yet it affords an Advantage to the *Vignerons*, in that his Drink will be so much the better.

As there is an Inconvenience in treading the Grapes, either in a Scuttle or a Vat, as I shall make appear, it will be better to make use of a Trough for a Wine-press; this is, without Contradiction, the best way to bruise the Grapes.

And besides, a Wine-press Trough will serve for four Panners, when the other will not serve for two, if they make use of a Scuttle; for according to the Measure that the Grapes are bruised in the Wine-press Trough, the Wine falling into the Vat does not rise above the Grape, by which it may be more easily known whether the Grapes have been well or ill trod before the *Marc* is turned into the Vat; or it is a great deal more easy to push it with the Foot, when the Trap-door of this Trough is lifted up, than to lift it up thence with bodily Strength, as they are obliged to do, when they tread in a Scuttle.

This Trough ought to be set in a kind of Litter, and placed upon or over the Vat; but when the Covering of the Structure where the Press is, is low, it must be placed over the Middle of the Press without a Litter; then there will be a little more Trouble, because it must be emptied into the Vat with a Bucket or Scuttle: but this is no great matter; there are Hands enough to do this Work.

The Grapes having been trodden, as before, the *Marc* may be thrown into the Vat, either with the Grape and Skins, or separated the one from the other: this depends on the manner after which one would make the Wine.

When the Grape is tunned with the Skins and the Wine, it may produce two different Effects, the one

of which will be good, and the other bad.

When it has been tunned a considerable time, the Wine is less green, less subject to be ropy, and better for keeping, than if it were done off-hand, or fit for present drinking.

But if the Grape be tunned too much, it takes from it much of its Quality, because it leaves a Harshness, which renders it not fit for drinking for above a Year in certain Lands, and in others it never loses the Taste of the Grape-stone; and when with this Excess of the Vat it has a Colour as red as Ox Blood, it is a Wine which they call *Groslier*, or *Matin*; and it is commonly said, it is better to keep than to drink.

When a Wine has this Fault, one cannot render it drinkable, but by mingling it with good dry new White-wine.

Then it is this Excess of the Vat that renders our Wines hard, and makes them diseased without any Distinction, although all our Wines are not made after this manner. But it is an easy matter to avoid this Fault, which renders our Wines contemptible.

There are those who tun the Grape-stone with the Skin, and would give to their Wine only that Degree of the Vat which it ought to have, not to be strong, to draw it out from time to time by a Pipe, or by some little Hole which they make in the Vat; but this I do not approve of, for Reasons to be given in the following Article.

Others make use of a Vine-prop, or some other Piece of Wood, which they thrust into the Vat, from whence they draw it out quick, and let it drop into a Glass, where they examine if it have Colour enough, and if it makes a Circle of Scum, and boils and bubbles, which they call

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Faire la roüe : others watch till the *Marc* is risen to such an Height, and make a Judgment by that.

As for myself, I am of the Opinion, that it would be a surer way to thrust one's Hand a pretty way into the Vat, (which I suppose to be raised, and to have been worked) to take from thence a Handful of the *Marc*, and to put it to one's Nose, as the Dyers do, to judge of the Disposition of their Vats ; then one may know if the Wine be made, and if it has Colour enough.

When it smells sweet, you should let it work a little longer in the Vat, until it has lost that Smell, and has a strong Scent that affects the Nose : then it ought to be taken ; for one Quarter of an Hour at most is sufficient to force it.

A Wine taken in its proper Degree of the Vat will never taste of the Grape-stone ; it will be always fit to drink, and will keep good for many Years.

I agree also, that the Wine that has been tunned too much, becomes tart and harsh, and that this is what takes away its Quality ; and as it is the Grape-stone, and not the Skin, that causes this Tartness and Harshness, the Means to prevent this Inconvenience is, in being very careful as to the Degree of the Vat that is given to the Wine.

But as one may often be deceived in giving it too much or too little of the Vat, I think the surest way would be, to stone the Grapes when they are trampled, before they are put into the Vat.

This Work would not be so much Trouble as it may be imagined ; for one Stoner would suffice to employ one Treader, let him tread as fast as he can.

When the Grapes are bruised in a Wine-press Trough, several may

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employ themselves in stoning : one Method of doing it is, to put them into a Basket plated, &c. about six Feet long, four Feet broad, and ten or twelve Inches high : and that this may not prove any Incumbrance, it may be placed about the Middle of the Press, and have two Men to sift and separate the Skins from the Grape-stones.

I find that a Cribble is much more convenient ; for it takes up less room, and there needs but one Man to work above, and the Work will be as easily or more easily done.

I have seen many of these Cribbles ; but that which I am going to describe, appears to me to be the most commodious.

The Cribble for stoning the Grapes ought to be made with Brass-wire, because that is more pliant, and does not rust so much, and lasts longer than Iron-wire. The Holes ought to be an Inch in Breadth, almost of an octagonal Figure ; it is worked upon two Hoops joined together, the one upon the other : and when it is finished, it is to be covered with a third Hoop or Band, that is about four Inches high.

As the *Marc* is in falling, and the Wine being pressed out, and that it is cast in the Height of the Cribble, they put under it, to sustain it, a Band of Wood, or little Hoop two or three Fingers high, which goes round at the Bottom of the Cribble ; and besides this, four iron Bars of the Thickness of a little Finger, because if they were broad, the Skins of the Grapes would rest there, which would hinder the other from passing.

It is proper to put these iron Bars in such a manner, that two of the four may sustain the other two, and that they be all of the same Length.

The Ends ought to cross the two Hoops, and to cover the third ; and they

they must be join'd to many Places of the Trelace with a Brass-wire, which may be double or treble.

The Wood of the Hoop ought to be notch'd in two Places over-against one another, and about an Inch in Depth, and three in Breadth, according to that of the Staves upon which it is to be placed; and these Staves should be placed upon a Scuttle resting upon the Vat, above which they tread the Grapes.

It is also proper that these Notches be plated with Iron, and that they have two Handles or Grasps of Iron pretty thick and round, to prevent the hurting the Hands of him that manages the Cribble, because it is weighty, and there is Occasion to remove it from Place to Place.

This Cribble may be about a Foot in Height, eight or nine in Circumference, and an Inch in Thickness at the Top, and something more at the Bottom, because of a Band of Wood that is placed round about to sustain the Trelace, as I have said before.

The Treader having bruised the Grapes, instead of pushing the Mass in the Vat with his Foot, as is done when he would tun the Grapes with the Skin, it is taken either with a Bowl or a Pail, or with the Hand, and put into the Cribble; then the Stoner separates the Marc, as well as he can, the Skin from the Stone, and casts the latter into a Vessel that stands near him: and when that is fill'd with the Grapes, they carry it to the Middle of the Press in a Pail, or in a Basket, and from time to time empty into the Vat (to which the Stoner is very near) the Skins and the Wine which are in the Vessel above, which has been stoned.

The Business of the Vintage-gatherers being finish'd, they put the Marc and all the Stones that are

upon the Middle, and they lower the Plank to draw from thence the Wine that is found there.

Some give it another Bruising, but I believe very unprofitably; for that can't get out much Wine, and also that which they get from these Stones has nothing but a Harshness: but nevertheless one may, because there is a little of it, mingle it with the other, that is in the Vat.

One Marc of Grapes, which one may reckon ten *Poinçons*, may yield about fifty Pints of Wine or thereabouts. This depends upon the Size of the Grapes, and the Heat which has been during the Time of the Vintage-gathering.

The Wine being boil'd with its Skin, it will be necessary to observe, from time to time, if it have Colour enough, and if it be sufficiently made, to be taken off: and when it is found that it is not yet red enough, the Marc must be thrust down in the Vat in order to give it the Colour, and never to be forc'd. You may also cover the Vat with a coarse linen Cloth double, and put the Board of the Press upon that, in case one is apprehensive that it will lose a Part of its Strength.

It is not the same, when the Stone is left to run with the Wine, because it can easily force; whereas this Inconvenience never happens when the Grapes have been stoned: for this Reason it ought always to be done; one is sure to have Wine well made, and such as may be kept many Years without spoiling, according to the Time that it has been left to ferment.

And if all our Red-wines were made in this manner, we should not have occasion to say, as it has been said for a long time, that our Wines are harsh and coarse; for it must be agreed, that it is nothing but the Stone

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Stone that gives it this bad Quality ; which is, however, accidental, since I have offer'd a Method to remedy it, which may easily be put in Practice.

Many Citizens complain, that the Merchants won't give a greater Price for the Wine whose Grapes have been stoned, than for that which has not ; but, in the mean time, it is better : it does indeed cost something more in making it after this manner, in that it takes up more Time in pressing.

Upon this account many Citizens have discontinu'd the stoning their Grapes ; but I do not approve of that : we ought to spare nothing to make good Wine ; and I am persuaded that there will always be found Merchants reasonable enough not only to make a Distinction between a Wine, the Grapes of which have been stoned, and that which has not, not only by their Taste, but in the Price too.

As the Grapes that are fermented without their Stones, are subject to grow ropy, it is good to prevent this Inconvenience in gathering them before they come to their full Maturity, and to give them but little Fermentation ; it can then never be too thick, because the Grape-stone not being there, it is impossible it should force it.

During the time that the Wine is working in the Vat, one may pierce the Casks, and put into each of them about a Pint of Water ; it should be boiling hot, or at least very hot : this will purify the Vessels, and render them more tight.

The Hole of the Bung being well stopp'd as soon as the hot Water has been put in, it should be shaken and turn'd on all Sides, to be able to see if it has Vent in any Place.

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Some pretend that this hot Water will take away the Taste of the Casks ; but I very much doubt of this.

In order to make this Experiment, it is requisite, that one be first sure that the Cask has any bad Taste.

When the Casks have been seasoned and drained as dry as may be, they must be placed upon the Stilliers, and there set firm with Stones, or some other thing, to hinder them from rolling while they are filling.

The Basket that is hung up by means of a Prop to receive and hold the Grapes and Skins which fall from the Middle of the Press into the wooden Pipe, ought to be well closed up to hinder the Stones from going into the Casks when they are filling, because when the Wine boils, it casts out the Scum, the Lee, the Skins, and the Stones, in order to purify itself ; and sometimes a small Quantity of these is sufficient to stop intirely the Holes of the Casks.

But to prevent this Accident, one may nail, at the small Hole at which the Wine runs down, a small Lattice of Brass-wire, of which the Holes must be very fine : then there would but a few of the Skins pass, and no Stones ; and the Basket, which is very troublesome when one would empty the Pipe, would be useless.

One may yet, for the greater Security, have another Grate, and fasten it with Nails above the Socket on the Inside of the Funnel ; but this Grate must be raised three or four Fingers, to the end that the Skins may not hinder the Wine from passing.

Before the Marc is begun to be put upon the Middle of the Press, I suppose the Press to be in such Condition,

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dition, that nothing is wanting of all the Utenfils that are necessary ; for it would be an Imprudence to have at this very Moment any wanting that is necessary for the making of a Marc.

It is true, one may borrow of Neighbours what one may want ; but it may so happen, that they may be using the Things at the same time, and that would be a great Disappointment.

The Screw being the most brittle and most necessary Part belonging to a Press, a Master ought always to have one in reserve, Ready to be put in, in case of Need.

In like manner, the Feet of the Beams should be examin'd some time before the Vintage, that they be not rotten ; for that is the Place they commonly fail in : and when this happens, it is not so easy to remedy it, as it is to remedy a broken Screw.

In order to make the Beams of a Press last a long time, when they are good of themselves, it ought to be so contriv'd, that they may always have the Air under the Middle of the Press ; especially at the End of these Pieces there ought not to be either any Marc or Earth, and therefore it should be hindred from falling there.

Some make a small Piece of Brick-work round each of these Beams ; and that is the best Precaution that can be taken to make them last a long time.

After the Press has been put in Order, and that the Wine has had its Degree or Time in the Vat, that it ought to have, or they can give it, it must be put upon the Middle of the Press.

When it is at a great Distance from the Vat, they make use of a Scuttle or Basket, or, if it be near,

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of a Pail : which they let drain upon a Board which bears at one End upon the Vat, where it is fasten'd with a Nail or other thing, and the other upon the Middle of the Press. This Board should be border'd on both Sides with Ledges, strait and well-join'd, and about an Inch in Height, to hinder what drains out of the Basket from running on the Ground.

A Piece of Wood, with a Hollow or Channel about an Inch deep, would be much better than this Board with Ledges ; for they can't be with Ease so closely join'd, but that the Wine will find some Chinks to run out at, which will not be in this Wood thus hollow'd.

Some, in order to empty their Vats the more easily, put in a Pipe, through which they draw the Wine clear through a little Bucking-tub made for this Purpose ; out of which they take the Wine in a Pail or Pannier, to empty it into the Casks.

For this Purpose the Vat must be set high on a Stilling or Gauntry, and the Earth hollow'd at the Place where the Pipe is plac'd.

Before the Wine is drawn off clear, you must always begin to take off the Cover of the Vat, in order to prevent the Wine from forcing ; and this must be done in such a manner, that he who empties has not the Trouble of lifting it up so high to put it into the Scuttle, or the Measure.

I own, that this Manner of emptying a Vat is very commodious : I shall, in the following Article, speak of the Inconveniency that may happen thence.

The Marc being placed on the Middle of the Press, they cover it with a Board, with Bolsters, Cushions and Bags or Pillows : there must be two Rows of these last, and sometimes three, when the Marc is thin, be-

because by how much less the Screw appears, by so much less is it in Danger of breaking; and as the Marc shall be thick, according as they have order'd it, there must be some Rows of the Bags retrench'd; for it is sufficient that there is a certain Distance between the Wheel and the Screw, which would not be so if the Marc were very thick, or there were many Sacks.

There is no need to put the Ring of the Rope into the Hook, before the Wheel has been lower'd on the Bags, and that you have examin'd if all is made even, and that none of the Bags are remov'd.

Before you begin to lower the Wheel upon the Bags, the Screw ought to be well greas'd above the Nut of it, and also below, when it touches the Bags.

They also grease that Part of the Screw that was within the Nut-screw before they have brought it down to the Point where it ought to be; for the first Operation after the Plank of the Axle-tree has been let down, and before the loosening, the Screw must be soap'd on the Places where it has had none.

White dry Soap, without Oil, is the best for greasing the Screw: when Oil is mingled with the Soap, that draws the Rats, which gnaw the Screw; and it occasions a Gum or thick Substance, which makes it go hard when they press the Marc.

The Trendle ought also to be plac'd at a reasonable Distance from the Middle of the Press upon the Nave of the Wheel; and being well rubb'd with Hog's Lard, the Trendle will turn the better: others make use of an iron Crow, which at least produces as good an Effect as the Nave.

When the Staves or Rammers are rather long than short, and that the

Trendle is pierc'd with an Height agreeable to a Man of a middle Stature, they will have the more Force to press the Marc.

After the Plank has been let down, and the Troughs fill'd to a Pannier, or thereabouts, and they have afterwards added the Wine that comes from these Pressings, they give the first Squeezing, which ought to be follow'd by three others in a short time, because the *Auvernat* having in it much Fire, its Marc would dry quickly, and yield much less Wine, if there were much Time between these Pressings.

It is not enough to grease the Screw of the Press the first Operation before the Balance is let down, when it is a Wheel-press; it ought to be done from time to time, especially when the Screw is perceiv'd to be rough, or screams in the Nut when the Trendle is turn'd.

Some, before they give the Marc the last Operation, *barbager*; that is to say, they work it, or prick it with an Instrument of Iron, but without touching the Sides, because they chuse to hinder it from falling on the Middle. They pretend that this little Squeezing makes the Marc yield about two Pints of Wine the Puncheon.

I have never made the Experiment; but this is seldom practis'd but in the Marcs of White wine, because they are thicker, and not so hot by much as those of *Auvernat*.

The last Operation or Pressing being given, you may wait twelve or fifteen Hours for raising the Marc, that it may have Time to drain; and they seldom raise it sooner, except they want the Press for making other Wine.

Altho' the Wine that comes out of one Vat is the same, yet they give it two different Names: the one they

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they call *Unpress'd Wine*, and the other, *the Wine of the Press*.

The first is that which comes from the red or white Grapes, when they have been trod, whether they have been tunnd or not; and the second is that which comes from the Marc after the Pressing. As this last has always a great deal more Colour and Harshness than the first, they mingle them together, to the end that they may make an equal Wine; and if they were not to do this, they would have one Part of the Wine of the same Vat too delicate and weak in Colour, and the other too red, and too harsh, which would not be fit for the Merchants, who are for an equal Wine.

When I say the Wine should be equal, I mean only that of one Vat, and not of one whole Cellar: for as all the Wine that one buys can't be all spent at the same time, and that the Merchants search sometimes for Wine high-coloured, and a little firm; and sometimes for a Wine more delicate, and fit for present drinking; therefore it is, in my Opinion, the Prudence of a Citizen to have Tuns of different Degrees of Colour and Firmness, that the more delicate may be drank first, and the firmest some time after, or the Year following; for most Persons love old Wine better than new.

But it is yet more advantageous for a Citizen to have Wine that is rather a little firm than too delicate, because if that be not sold quickly, it may grow ropy, or be spoiled; when, on the other hand, that which is well mixed will keep a great while, and he may sell it a long time after.

It is true, the Merchants often slight, or rather seem to slight and reject, a Wine that has been but little fermented; but it is very often nothing but a little Chicane that those

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make use of who are employ'd to purchase Wines, to buy them the cheaper; therefore we must give them Leave to say what they will; but always give the Wine something of the Tun, because if it be not sold at first, it will at last: whereas, when it is made for present drinking, it must be sold as soon as may be, and perhaps under Price.

Some Persons, out of Thriftiness, or rather fordid Covetousness, fearing to lose a little Wine, never intirely fill their Casks till the Wine has cast forth its greatest Fire, that is, they won't make it boil till it has no Force left; and there being only one Pannier full of Wine put into the Cask the next Day, or two Days after it has been filled, that has not the Force to warm it again sufficiently to make it boil.

This Way of managing Wine is very wrong; for it causes all its Excrement to remain at the Bottom of the Cask, which augments the Lee, and often contributes to the spoiling the Wine, and to keep it for a long time foul, which therefore the Merchants reject.

It would be much better to fill it presently up to the Bung with the Pressurage, or with what has been press'd, which is taken from the Pressings that they give to the Marc, because the Casks being always full, the Wine purifies itself the more, and becomes clear in less Time, and of Consequence is more palatable, and may be sold sooner.

It is not enough to fill the Casks up to the Bung the first time that the Wine is put into them; they ought to be fill'd many times; that is to say, as soon as the Boiling is over, Wine must be put in to excite it to boil; and the same thing is to be done the next Day, and afterwards for eight or ten Days every other Day.

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The Necessity there is of filling the Casks as soon as the new Wine has been put into them, is proved by the Accident that happen'd to the Wines in the Year 1718, when the Season was too hot, and too dry, during the Months of *July* and *August*.

The Wines were then so extreme hot as to boil very low in the Casks, so that many, who had neglected to fill them at first up to the Bung, had their Wine turn'd sour; which did not happen to those who had used the Precaution of filling them to the Bung, and keeping them full: and for this Reason, those who have many Tuns of Wine, ought always to take of the last they have made to fill all those Puncheons of the other Tuns; and when a Person has but one, he must put of Wine in a Cask call'd a *Gueulebée*, to fill those Puncheons as far as to the Bung, as soon as the Wine has done boiling; then the Wine that remains must be put into the Casks or *Gueulebée*, or into a very close Vessel, for fear of its evaporating, or losing its Spirit.

I will say, by-the-bye, that many deceive themselves in making Wine these hot Years; for they let it ferment but a little, because it boils as soon as it is trod; but this is but a false Boiling, which comes rather from the Fire that is in the Grape, than from the Working in the Tun; therefore it ought to be tunned a considerable time. It is in such Years the Grapes should the rather be stoned, and that the Wine should be sufficiently fermented.

It is true, there is some Inconvenience in filling the Casks up to the Bung the first time the Wine is put in, because it is impossible not to lose some of it; for it will mix with the Scum and the Lee

which comes out at the Bung; but this Inconvenience may be remedied, by setting Gutters above the Bung, and Pans or Vessels of Wood under the Gutters, to receive all that which comes out.

And whereas some pretend, that Lead communicates an ill Taste to the Wine, it is the surest way to have them of Tin, in such manner, that nothing but the End of the Socket may enter into the Hole of the Bung; for if the Hole be made larger than that the Socket may play within it, the Gutter will be useless, because the Wine would run out between the Wood and the Socket.

There must also be a Vessel call'd *Gueulebée*, to empty these Vessels in as they fill; and it should be covered with a thick double linen Cloth, and closed or fastened all round about with a Hoop, to hinder the Wine from growing flat.

The Lee descends by little and little to the Bottom of the Casks, where it is joined with the Scum, which there falls together, and is incorporated with it.

Some Days after, the Wine being grown clear, they take away the Vessel, and the Lee remains at the Bottom. This Wine may be put in a Vessel by itself, without mingling with the Wine which is in the Casks; out of which it came. Some say, this collected Wine is the more fine; and strong; but others affirm the contrary: they may say what they will, but it is always true, that this Wine is very good, provided it has been kept very close in the Vessel where it was collected.

And I believe that one might, without any Scruple, make use of it for filling the Wine: but as to this, you need not consult either the Merchants, or the *Vignerons*: since

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the one have not Judgment or Sincerity enough, and the other are too much interested : and I speak with a Knowledge of the Matter, founded on the Experience I have had many times, and without any Interest but that of the Public.

Those who from a covetous Temper will not be at the Charge of procuring these Gutters and Vessels to receive the Wine of the Casks while they are boiling, have no Skill in it: for the Wine which they would save by this means, would make amends intirely the first Year for the Expence they would be at in procuring them.

Others, that are afraid that they shall not sell their Wine, say, that the Merchants have always an Opinion in favour of that Wine, of which the two Sides of the Bung of each Cask are filled with Scum as far as the first Bands or Circles ; and that they have a quite contrary Opinion of those where it does not appear.

It is true, that formerly they did mind this, and their Opinion might be well-grounded, because they never made use of these Gutters : but at this time their Opinion is alter'd ; for they are persuaded, that these Gutters being in Use, a Cask may have cast out all the Scum without its appearing at the Sides of the Bung, because it falls into these Vessels that are set to receive it ; and likewise, that all the Wine that is there is well mingled.

Besides, it is an easy matter for a Merchant to know if there be much Lee in the Cask ; for he needs only to pierce it into the Lee, that is to say, at the Bottom, about two Fingers of the Notch of the Cask where the Head-pieces come in.

The Wine having cast out all its Scum, it will be proper to taste all the Casks into which it has been put,

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with the Intent, if any one be found that has a bad Relish, to apprise those of it who have furnish'd them, that they may put all the bad ones to their own Account.

Some say, that *St. Martin's-day* being pass'd, you cannot oblige the Merchants, who have furnish'd the Wine, to take that again which has been spoil'd in the Casks, because they say it is the more difficult to remedy it : others pretend, that the Merchants are answerable three Months after the Casks have been fill'd, provided they have not been remov'd from off the Stillings.

When the Wine has done boiling, it must be covered with the largest Side of the Bung, to hinder it from evaporating ; and eight or ten Days afterwards it must be fill'd full, and bung'd up.

Some make use of Bungs about half a Foot long, because they can take them away without daubing the Casks with the Scum. But I am of the Opinion, that broad Bungs are better, and to make two Holes on the Side, the one about the Bigness of a little Faucet, the other about the Bigness of one's little Finger, that a tin Funnel may be put in, having in it a Piece of Tin foldered about two Inches from the End ; the Holes of which may be as big again as those of a Tobacco-grater, to the end that when one uses it to fill the Casks, neither Stone, nor Skin, nor Kernels, nor Lee, may pass : the great Hole serves for the putting in of a Funnel, and the other to give Vent for the Casks during the time the Wine is poured in them.

This little Hole ought to be made at the time that the Casks are bored, to put in the Wine with the great wooden Funnel ; for if the Socket does exactly fill the Bung-hole, the Cask would fill but very slowly,

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slowly, if it had not Vent given it by the little Hole.

When it is done after this manner, the Tuns are not daub'd with the Scum ; it is not disturb'd, as is done in striking to beat in the Bung, and the Wine will have less Vent.

You must be sure to fill the Wine every fifteen Days after it has been bung'd, until towards St. *Andrew's-day* ; you are not to meddle with it any longer till after the Severity of the Winter is over, which commonly happens towards the Middle of *February*, because the Frost may make it swell.

The *Auvernat* is not the only Red-wine that we have in this Vineyard-plot ; there are also other Wines made that have the same Colour, but are of a different Quality.

There is, for Example, the *bon Lignage*, or the good Wine, and that which is made of all Sorts of Grapes. As to the first, it is made up of the Red *Auvernat*, the Teint, the Grey, the White, the tender *Samoireau*, the *Melier*, and all the best Sorts of red Grapes.

The second is compos'd of all Sorts of Grapes, good and bad, but more of the latter than the former ; whence it is easy to be comprehended, why the one has less of the Quality than the other ; and as this second is generally spent in the Country, they make it all manner of ways, either fit for present drinking, or firm, or hard, according to the Occasion they have for it, and the Quantity they are to provide. As to the other, they don't fail to make it, and often send it to *Paris*.

All these Sorts of Grapes are not gather'd with the same Care as the red *Auvernat*, which cannot bear the Water ; nevertheless the Wine is the better, when the Grapes, with which it is made, are cut in a Season

that is rather hot and dry, than cold and moist.

We have in some Places of this Vineyard-plot, three Sorts of Red-wines, which bear the same Name, which nevertheless they distinguish the one from the other : there is the tender *Samoireau*, the hard, and the *Fourchu*, which have all three different Qualities.

The tender *Samoireau* does very well in the Lands of the *Olivet*, St. *Mesmin*, and *Clery*, where it is more plentiful than any-where else. They make of it a particular Wine, which will keep a long time, provided it have no Mixture, and that they give it but little of the Vat ; this renders it firm, and prevents it from growing rosy.

This Grape may be mingled with the red *Auvernat*, because they both ripen at the same time. The *Samoireau* gives the Colour to the *Auvernat*, it sustains it, and causes it to keep a long time ; but you must put only a small Quantity, for fear of intirely absorbing the Quality of the *Auvernat*, which after it has lost, it also loses its Name, and is no more regarded, but as a good *Vin de Lignage*, or one compos'd of all Sorts of Grapes, which is vulgarly call'd *Vignerons Auvernat*, very different from that of the Citizens, which is in a manner pure *Auvernat*. When one would render this *Vin de Lignage* yet better, he may put to it a fourth Part of good *Melier*.

The hard *Samoireau* is a little higher-colour'd than the tender ; when it has but its proper Degree of the Vat, they may mix one or two Puncheons of White, and a little less, when they run it : they should also, when it may be done, take a *Melier* of a better Kind ; for this Wine has not much Fire. When it is pure, and it has pass'd the Year, that
Quality

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Quality diminisheth ; it is then proper to make use of Rapes, not of Chips or Shavings, but of Corn, without putting Grapes to it, as some do ; for that renders it hard, and disagreeable to drink.

It is sufficient to put a third part, or at most a half of the Seeds into a Puncheon ; and after that, they fill the Wine up to the Bung. They make use of these Rapes to put off the Grounds or Bottoms of Wine, and the weak Wines, which they also mingle sometimes with them. The third Kind of *Samoireau*, of which I shall speak, renders them the better for keeping.

The *Samoireau Fourchu* is the best of the three Kinds ; this is proper to give the Colour to the others, and to sustain those that are weak, and to restore those that have any Defect.

In order to know the Colour, they cast some of it against a Wall ; and according to the Impression it makes, they judge of the Effect it will produce.

One single Puncheon of that will colour six of White, and sometimes more, according as the Seasons are hot, and the Quantity of the Wine that the Vineyard has yielded. This Wine is not only good to drink, when it is taken in time, but it serves for a Remedy against the Dyfentery and other Maladies. Its Marc is good against Rheumatisms.

This Plant has a Virtue that is not found in any others, because the longer it is kept, the better it is : for it is better for drinking at the End of twelve or fourteen Years, than one or two Years after it has been made.

Some put it into Bottles, but it keeps equally as well in Casks, provided Care be taken to keep them always full, and to observe that the Casks don't want Hoops ;

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and it will be proper to put on several iron Hoops at each End.

The Wine, the Marc, and the Wood, or rather the Ashes of this Plant, have also a great many other Properties, which I shall not relate.

The Time of gathering these two Species of *Samoireau* comes much later than that of the first ; that ripens at the same time with the *Auvernat*.

The Territory of *Mardic* is the most proper for these Plants, and that which produces the most of it (I mean of the hard and *Fourchu Samoireau*) ; there is of it at *Bou* and *Cbeci*, and but a very little in any other Places of this Vineyard-plot.

As the *Fourchu* never produces more Wine than when it is a little old, many, eager to enjoy the Fruit of their Labours and their Expences, have not Patience to wait so long ; and therefore they pull up those of them they have, and can't resolve to plant them when they have them not.

Nevertheless this is a precious Plant, and one may judge of it by the Effects that it produces, and by the Price which it bears ; for it is commonly sold for double the Price of the best Wines of this Country : and I don't know but that those who destroy them, and those that don't raise them, will repent it one time or other.

As there is not much to be said of the Manner of making White-wine, and having taken Notice of it at the Beginning of this Article, I shall say but little of it particularly.

Altho' there are many Kinds of white Grapes, yet they make, as one may say, but two Sorts of Wine of them ; the one is the moist, the other is dry Wine.

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The first, such as the *Muscat*, or the *Gendin* of *St. Mesmin*, those of *Marigny*, of *Rebrechein*, and other neighbouring Places, may be look'd upon as the most precious, in that they bring the Money into the Kingdom, rather than the dry Wines; for they send them into *Holland*, *Flanders*, *England*, &c. To render this Wine the better, they don't content themselves to see that the Grapes have their perfect Maturity, and be half rotten; they wait oftentimes till the Frost has taken them, to have the Wine which they call *Bouru*, and in some Years they defer the Vintage until the 15th or 20th of *November*, and it is then sometimes so cold, that the Icicles hang upon those Grapes that perished, so that they are oblig'd to carry Fires into the Vineyards in great Pans, to warm the Gatherers.

It is true, that those who tarry so long before they gather, have a great deal less Wine than others; but then at the same time it is much better, and sells a great deal dearer; so that I believe it comes much to the same, or very near the Matter.

The Wines of which I am speaking, altho' sweet of themselves, they have nevertheless not always the same Degree of Liquor; this depends upon the Condition of the Season, that is to say, by how much the Summer and Autumn is the hotter, the Wine has the more Liquor, and it has a great deal less when the Season is the contrary.

What I say is so true, that the Season having been very hot in the Year 1719, the sweet Wines themselves had abundance more Liquor than ordinary, and kept good more than a Year; the dry Wines also of many Places were sweet and clear.

Some Red-wines were likewise very soft, (which is very rare) and held

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good till the Month *February* in the Year 1721. It is true, they were thick, and that they did not become clear till the Time that they lost their Sweetness, which alter'd their Strength.

The Softness of the White-wines being over, they were nevertheless good; but as there remains a certain Flavour, which pleases the Palate of most Persons, it is best to sell them, and spend them as soon as may be.

One may know by Experience, that good Grapes almost always make good Wine. Among the white Grapes, without Contradiction, the best are the *Melior* and the white *Auvernat* of the *Low-Countries*; as the white *Formentes* or *Bourguignons*, the *Maledeneaux*, the *Framboises*, the white *Gois*, &c. make a Wine, which is better to throw away than to drink; yet the Vineyards of the *Vignerons* are stuffed with these wretched Vines, because they yield more Wine, and for the most part better resist those Accidents that happen to a Vineyard; for these People have no regard to any thing but the Quantity, which is the Reason, that they do not ordinarily sell their Wines to that Advantage as the Citizens do.

The white Grapes cannot be gathered too ripe, because the riper they are, the more Wine they produce, and their Rottenness does not give it any bad Taste; but when it is begun before they come to their full Ripeness, they are subject to grow yellow; yet regard is to be had to those Lands of which the Wine is subject to grow ropy.

For this Reason, when they are gathered, it is good that the Grapes have a little Greenness, to the end that the Wine that comes from them may be able to keep dry; to which

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the white *Auvernat* of the *Low-Countries*, and the green *Melier*, contribute very much: the last hinders the Wine from being ropy, and the first makes it clear; and for this Reason it is good to plant of it with the *Melier*, because at the Time of gathering they may be both mingled together, and make a Wine without any Fault.

One ought to endeavour not to gather the white but when the Weather is fair; a rainy Season is not so favourable: for one ought never to mingle Water with the Wine that one makes, tho' some are not over-scrupulous as to this Point. It is true, the Inconvenience is not so great in respect to the *Auvernats*; but that should not hinder one from always endeavouring to make good Wine; for which Reason it is best to gather the Vintage in a dry, hot Time.

As the White-wine is not tun'd, when they bring the Grapes in Panniers from the Vineyards, they empty them directly on the middle of the Press, where they trample them with their wooden Shoes; the broadest and smoothest are the most proper for this Work.

The Grapes ought to be trod immediately, that is to say, every Pannier as they bring them from the Vineyard; otherwise the Wine would be yellow, and this Colour is disagreeable to the Sight, and still more to the Palate, and consequently gives the Wine a bad Quality.

According as the Grapes are pressed on the Middle, and that the Pipe fills, they empty it to fill the Puncheons or the Quarter-puncheons to a Pail-full, or thereabouts, according to the Largeness of the Cask wherein 'tis put. To make it boil, they fill them up to the Hole of the Bung with the Wine which comes from the two first Pressings,

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and that which remained in the Pipe before they gave the two first Squeezings; and that which the others yield, serves to put into the Wine when the first Boiling begins to be diminished.

One ought always to give to the Marc, whether it be white or red, four Pressings, without taking in the lowering of the Beam; that is to say, that it ought to be cut four times.

Some give it the third Working, with an iron Gripple in the Middle of the Marc; and they leave all round about half a Foot in Breadth, to keep in that which is wrought; and at the fourth Pressing they cut the Border that they left, and put it back upon the other.

They pretend that a Marc so ordered yields the more Wine. As the Marc of White-wine is the more thick, and has less Fire than the *Auvernat*, it does not dry so quickly; for this Reason there ought to be longer Times between these Squeezings.

They give them these commonly in the Night-time, because they do not lower the Beam but when the Day's Work is finished, when the Men who are to work the Marc have supped.

When the White-wine is cold, it must be fill'd up and bung'd, and kept always full, at least if it be not in the Depth of Winter; for when this kind of Wine is emptied, it becomes yellow in most Countries; but when this happens, it is easily remedied, either by stirring it with a Stick of Hazel cleft into four, which is put in at the Bung-hole, or in shaking briskly the Puncheon, which they leave sometimes on the Bung, to the end that the Lee that descends thither, and afterwards is mixed again when the Cask is turned up, will take away the Yellowness.

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Of Wines, and vinous Liquors, in general.

WINE is a brisk, agreeable and spirituous Juice, drawn from vegetable Bodies, and fermented.

Dr. *Boerhaave* characterizes Wine, that the first thing that it affords by Distillation, be a thin, fatty, inflammable, &c. Fluid, called a Spirit; and in this it is distinguished from another Class of fermented vegetable Juices, *viz.* Vinegars, which instead of such Spirit, yield for the first thing an acid, unflammable Matter.

In order to the making Wines, it will be of great Advantage to be well acquainted with the Business of Fermentation. This Dr. *Boerhaave* defines and explains as follows:

Fermentation is a Change produced in vegetable Bodies, by means of an intestine Motion excited therein; the Effect whereof is this, that the Part which first rises from them in Distillation, is either a thin, fat, acrid, hot, transparent, volatile and inflammable Fluid, that will mix with Water; or else a thin, acid, pellucid, less volatile, unflammable Liquor, capable of extinguishing Fire.

The Liquor obtained by means of Fermentation, is called thin, because none appears to be thinner than the Spirit of fermented Vegetables; acid, because it almost acts like Fire, when applied to the Tongue, or other Parts of the Body; volatile, because there appears to be no Liquor, that is raised with greater Ease: but 'tis this Liquor being totally inflammable, and at the same time capable of mixing with Water, that ultimately distinguishes Fermentation from all other Operations in Nature; for neither Putrefaction, Digestion, Effervescence, nor any thing of that kind, will ever afford a Liquor at once possessed of those Qualities.

Putrefaction, indeed, as well as

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Fermentation, is performed by means of an intestine Motion; but the former will never produce either of the Liquors above described, as the Effects of Fermentation, that is, neither a vinous nor acetous Liquor.

We see then, that there are two different Effects of Fermentation, the Production of an inflammable Spirit, and an unflammable Acid; and whatever Operation will afford, neither of these Liquors is improperly called Fermentation; which therefore can only take place in the Vegetable Kingdom: for all the Art in the World, so far as hitherto appears, will never gain such Spirits from Animals or Fossils; and consequently never excite an actual and real Fermentation in them: for Fermentation is the single Operation in Nature, by which such Spirits can be obtained.

2. Any vegetable Liquor so fermented, as to afford the inflammable Spirit above-mentioned, for the first thing in Distillation, we call *Wine*; but if the Liquor be so fermented, as first to afford the acid, unflammable one, 'tis called Vinegar; by which we mean every thin, acid, volatile, vegetable Liquor, capable of extinguishing Fire: so likewise, under the Name of *Wine*, we include Beer or Ale, Mead or Methglin, Cyder, Perry, all Sorts of artificial Wines, and whatever Liquors afford Spirits possessed of the Properties before set down.

The like is to be understood of Vinegar, which is obtainable from all the same Bodies that afford Wine: so that we have either the Wine or Vinegar of all Sorts of Fruits, as of Grapes, Currans, Mulberries, Cherries, &c. all Sorts of Grain, as Barley, Wheat, Oats, &c. all Sorts of Pulse, as Beans, Peas, Tares, &c. all Sorts of Roots, as Turneps, Carrots, Radishes, &c. and in short, of all

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Sorts of vegetable Substances, even Grass itself.

3. All the Bodies capable of being changed by Fermentation, either into Wine or Vinegar, are said to be fermentable Bodies; and because such a Change can only be wrought, so far as we know at present, upon Vegetables, these alone are accounted fermentable.

4. Any Matter which being mixed with a fermentable Body, increases its intestine Motion, or excites or forwards the Fermentation, is called a Ferment: and, according to the Doctrine before delivered, nothing can properly be called so, but what will produce either Wine or Vinegar.

These fermentable Bodies may be reduced to the following Classes:

The first Class will consist of the mealy Seeds, *i. e.* all the Grain, which being fully ripe, and well dried, may be reduced, by grinding, to a light Meal or Flour, that is neither clammy nor unctuous.

The second Class consists of all the pulpy Summer Fruits, which when ripe, affect the Tongue with the Sense of Acidity and Sharpness, as Apples, Pears, Grapes, Gooseberries, &c. Under this Class may be ranged all manner of bulbous pulpy Roots growing in the Ground, if they are but first deprived of their volatile, alkaline Salt, which is apt to determine them to Putrefaction.

The third Class takes in all the juicy Parts of Plants, as the Leaves, Flowers, Stalks and Roots, provided they are not too oily, or too alkaline, in which Cases Vegetables will rather putrefy than ferment.

The fourth Class contains the fresh, expressed and native Juices of all Kinds of Vegetables; to which may be added, all the native, saline Liquors that distil from wounded Plants, as the Tears of the Vine, the Walnut, the Birch-tree, &c.

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Under the fifth Class come the most perfect of all vegetable Juices, *viz.* those that are unctuous, condensed and elaborated by Nature herself, such as Honey, Manna, Sugar, and all other Kinds of concreted Juices capable of dissolving in Water.

In order to fit any of the fermentable Bodies for Fermentation, there are several Particulars requisite:

1. Maturity; the Juice of unripe Berries, as of Currans or Gooseberries, for Instance, will scarce be brought to ferment at all; while it is very difficult to hinder their Juice, when fully ripe, from falling spontaneously into Fermentation.

Thus the Juice of unripe Grapes, being incapable of fermenting, is a rough, acid Liquor, called Verjuice, that will for several Years remain in the same unactive State; but after they are come to Maturity, it can no sooner be pressed into the Vessel, than it becomes a fermentable spirituous Fluid.

2. Another Requisite to prepare a Body for Fermentation, is, that it should contain only a moderate Proportion of Oil; or if it either exceeds in the Quantity, or be intirely destitute of Oil, it will never be brought to ferment at all. Thus Almonds, Fenel-Seeds, &c. are always deprived of their Oil before they are attempted to be fermented.

3. The Bodies intended for Fermentation, must not be too acid or austere; as is plain from the acid Juices of unripe Fruits, which are greatly indisposed to ferment.

4. The last thing required to fit and prepare a Body to undergo Fermentation, is the Property of dissolving in Water: for want of which all acid Bodies, and such Woods, Roots and Herbs as are dry and hard, become unfit for this Operation; for unless the Parts of these Bodies are dissolved,

dissolved, the requisite intestine Motion thereof will not ensue; but without such Motion, Fermentation cannot subsist.

Hence Honey itself can never be made to ferment, whilst it retains its native, thick Consistence; but being dissolved by Heat, or let down with Water, it immediately enters the State of Fermentation. On the other hand, so violently as the Juice of Grapes affects this State, yet, if immediately after it is expressed, it be reduced, by boiling, to the Consistence of a Jelly, it will lie quiet, and never ferment at all, unless it be again diluted, and let down with Water.

Ferments are of two Kinds, the natural or spontaneous, and those produced by Fermentation.

The spontaneous or natural Ferments are,

1. All the fresh expressed Juices of fully ripened Plants, which easily run into Fermentation.

2. Honey, Manna, Sugar, and the like thick and inspissated vegetable Juices, which cause a strong Fermentation.

3. The Ferments produced by Fermentation, are the fresh Flowers or Yeast of any fermenting vegetable Juice or Liquor, as of Wine, Beer, &c. By Flowers or Yeast is to be understood that light frothy Matter, which covers the Surface of the fermenting Liquor, in the Nature of a tender Crust, and which being added to any other fermentable Juices, will excite a Fermentation in them.

3. The fresh Fæces or Lees of any fermenting Liquor, as of Wine, Ale, Beer, &c. For all Fermentation divides the Liquor, which is the Subject of it, into three Parts; *viz.* the Flowers or Yeast, which possess the uppermost Place; the operating or fermenting Fluid, which lies in

the Middle; and the gross and seemingly exhausted Matter, which falling to the Bottom of the Vessel, is known by the Name of *Lees, Sediments, Feculence, or Mother*, that will, if raised again out of the Liquor into which it was precipitated, cause it to work afresh.

Thus, when a Hogshead of Wine has done fermenting, and is fined down, if the Vessel be any way shook or disturbed, it will grow turbid again, and ferment anew, as Vintners very well know: for such as were the Flowers in the Act of Fermentation, such is the Mother after the Action is over.

5. Acid Paste, or Bakers Leaven, which is no more than any kind of Meal brought into a close Lump by means of Water, after the same manner as common Bread is made; for this being set in a warm Place during the Space of four or five Days, it will first swell, then turn very acid, and at length become a Ferment.

6. Those Ferments which reside in, or stick to the Sides of the Casks that have contained fermenting Liquors; for such Casks will of themselves raise a Fermentation in the Liquors committed to them; and *Helmont* was of Opinion, they might be capable of doing this for ever.

Upon account of this inherent Ferment it is, that old-seasoned Vessels, or such as have been long employed by Vintners or Brewers, bear so great a Price among them.

It is very remarkable, though a thing well known to Brewers and Vintners, that a new Cask checks the Fermentation of vinous Liquors, and renders them weak and spiritless; for which Reason they never chuse to make use of such a Cask before it is seasoned, as they call it, by having first contained some spirituous or fermented Liquor or other,

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which being plentifully drank in by the Wood, the original Liquor comes to be deprived of a large Proportion of its Spirit, and more fermentable Part; whence the Remainder must needs taste flat and vapid.

This is certain, that even Must itself will not easily ferment in a new pure Vessel, but with the greatest Facility, if put into one that has before contained fermenting Juices; for the Parts of the fermenting Liquors, with which such a Vessel must have been impregnated, presently rouse and determine it to Action.

7. There are some Ferments that appear to be heterogeneous, or which are improperly called Ferments; as the White of an Egg beat into a Froth, which is used when the Liquor to be fermented proves too dilute or thin to sustain the Operation: for in this Case the fermentable Parts of the Fluid easily extricate themselves, and so fly off for want of something to detain and keep them in the Body of the Liquor; which therefore requires some viscid Substance to be mixed with it, in order to prevent this Avolation of its subtil Parts: and this cannot be more commodiously effected than by the White of an Egg.

8. Of the like heterogeneous kind of Ferments are all fixed and acid Salts. Thus, if the Liquor designed for Fermentation be too acid to work kindly, the Addition of an alkaline Salt, as that of Vine-branches, or any saponaceous Substance, will, by taking off from the Acidity, fit it for, and so promote the Operation; but if the Liquor be of itself too alkaline, then Tartar, or the like, ought to be added to it to promote the Fermentation.

But this does not happen, because either the acid or alkaline Salt is an actual Ferment, as some Chymists

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have vehemently contended for the Alkaline, because the Salts employed respectively temper and take down the predominant Acid or Alkali, which before hindered the Fermentation of the Liquor.

And if such Salts should in due Quantities be mixed with any proper Subject of Fermentation, possessed of all the Qualities before set down, as requisite to it, the Operation would be intirely checked and prevented; so that alkaline Bodies may as well be said to hinder, as promote Fermentation.

9. And lastly: Of the same Sort are certain austere or rough-tasted Substances; as all harsh and green Fruit, Pomegranate Bark and Flowers, the Tamarisk Bark, Crab-apples, unripe Medlars, &c. which, when the Liquor designed for the Fermentation is too much broken in its Parts, or dissolved in its Texture, bind it together again by its astringent Quality; so that though it was before too thin and aqueous, it is now reduced to a proper Consistence for Fermentation.

Thus, when Must proves thin and watery, it will not ferment kindly, unless some austere or astringent Ingredient, as Red-rose-leaves, or the like, be added to it to thicken and improve its Consistence, and at the same time prevent the Air it contains from making too easy an Escape.

But when a Liquor is too austere, or its Roughness proves so great, that it cannot ferment; the Addition of a fixed Alkali, in a proper Quantity, will remove the Obstruction, and leave it at Liberty to work.

So likewise, when the Operation is prevented by too large a Proportion of Acid in the Liquor, the Method is to throw Chalk, Crabs-eyes, Bole-armoniac, or the like, into it; but if it be too unctuous or

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oily, as is the Case of some *Spanish* Wines, Salt of Tartar is made choice of; and thus, as Circumstances alter, different Bodies are employed to stop or promote Fermentation in Liquors.

In order for fitting the Subjects of the second Class for Fermentation, and making vinous Liquors, *viz.* pulpy Summer Fruits, and the Roots of bulbous Plants, in case they prove crude or hard, they are to be first boiled in Water, and afterwards bruised; which will dispose them for Fermentation: but if such Subjects are juicy, they may be directly ground to a Pulp, or have their Juice pressed from them; or if they are very succulent indeed, there may be no Occasion to bruise them, only directly to commit them to the Press, and squeeze out all their Juice.

But if the Flesh or Substance be strong and tough, it may be proper to rasp, shave, or cut them into small Pieces; which will be of Service in some bulbous Roots, and make them yield their Juice with the greater Ease, and in greater Plenty.

Prepared Fruits seldom stand in need of any thing to make them ferment; for they generally begin to work of their own accord: but if the Weather prove exceeding cold, or the Operation proceed but languidly, it may not be amiss to quicken it, by adding a small Proportion of a Ferment, as a little Yeast, the Lees or Mother of Wine, or even a little new Wine may serve the Turn.

The Subjects of the third Class, *viz.* the succulent Parts of Plants, need only, in order to their Fermentation, be beat to a thick kind of Pulp, while they are fresh, and mixed with a proper Proportion of Rain-water, that is just enough to dilute them; for if much Water be employed, the Spirit will be the weaker for it.

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These require but very little Ferment, or none at all, to make them work in the Summer Season; and no large Proportion in the Winter: but in case any at all be required, nothing will prove more serviceable than Honey or Sugar.

The Subjects of the fourth and fifth Classes, *viz.* the fresh, native Juices, and weeping Liquors of Vegetables, with the condensed and unctuous Juices of the same, are to be diluted and let down with Rain-water to a due Consistence, which is then commonly thought to be obtained, when the compound Liquor will just keep a new-laid Egg afloat: but some vegetable Juices may naturally be of this very Density or Consistence; and in that Case they will require no Water at all: if any be thicker or denser, they ferment not so kindly; and if thinner or rarer, they afford but a weak Spirit. Thus, in order to ferment Sugar, Treacle, or any common Syrup, we first let down the Matter with Water, to the Consistence above-mentioned; and then, if there be Occasion, put Yeast to it to quicken the Fermentation, and make it proceed kindly.

The Subjects of the fourth Class, *viz.* the prepared recent Juices, and spontaneous Tears of Vegetables, are so far from requiring any Ferment, that it often proves very difficult to restrain or check the Fermentation they naturally fall into, especially if the Season be warm, and the Juices rich; at most, if the Weather should prove cold, they need only be set in a warm Place to make them work.

The Subjects of the fifth Class, *viz.* the prepared or inspissated Juices of Vegetables, require no Ferment at all in the Summer, and but a small Proportion in the Winter, to

set them on working; less than an Ounce of Yeast to twenty Pints of prepared Liquor, will usually suffice for that Purpose in the coldest Season: but in hot Countries, or sultry Seasons, these prepared Juices, and especially Sugar, are of themselves apt to fall into a too violent Fermentation; which therefore ought to be abated by the contrary means.

All the vegetable Bodies of these several Classes designed for Fermentation, and prepared for it in the foregoing manner, ought, together with their Ferments, to be committed to Casks of Oak already seasoned or imbued with the same kind of fermented Liquor, or some other, consisting of subtil and penetrating Parts: then those Casks or Vessels having their Bung-holes lightly covered with a thin or single Cloth, and being set in a warm Place, the Liquor will ferment.

The Mouths of the Vessels are thus slightly covered over, that the Air may have a fresh Passage in and out at them; for they are here designed to serve as Vent-holes. And these Vessels are ordered of Wood, because Fermentation is never observed to be so well carried on in those of glazed Earth or Glass; tho' on account of their Transparency, 'tis sometimes performed in the latter, that the Phenomena may be better observed.

The preparatory Business of Fermentation, hitherto described, has been carried on by Art, but Nature must now perform the rest of the Work; so that we are here only concerned to observe the Phenomena which arise in the Operation.

When therefore any fermentable Body is prepared, after the manner above delivered, and with its due Proportion of a Ferment, committed to a large strong Glass Vessel, standing in a warm Place:

1. The whole Body of the Liquor soon begins to swell, heave, rarefy, and send up little Bubbles to the Top of the Vessel, where they burst with an audible Noise, and form into Froth: now the Liquor, which was before transparent, grows opaque, and a violent uninterrupted intestine Motion manifests itself therein.

2. The Parts of the fermenting Fluid appear to be incredibly elastic, and the Motion of them exceeding violent. Indeed, by means of this Property of Fermentation, very terrifying and surprising Actions may be performed. Thus, if an hundred Pints of Must were, on some warm Day in Autumn, to be confined close in a Vessel of Oak above an Inch thick in the Sides, and made ever so tight and strong with iron Hoops, yet could not this prevent the working of the Liquor; but in spite of so great a Resistance, it would burst the Vessel, with a Report as loud as that of a Cannon.

And therefore the way to preserve new Wine in the State of Must is, to put it up in very strong, but small Casks, firmly closed on all Sides, by which means it will be kept from fermenting; and then it goes by the Name of *Stum*: but if it should happen to fall into Fermentation, the readiest and only way to stop it, is by the Fume of Sulphur, or something of the like Nature.

Were it not for the Knowledge of this Property of burning Sulphur, the Wine-merchants and Vintners might frequently sustain great Damages from the bursting of their Vessels when the Liquor is upon the Fret, or, by some Alteration in the Air, or other Accident, begins to ferment again: but the Smoke of a little common Brimstone, or a lighted Match dipped in it, and held under a Cask of Wine that is just ready to

to burst its Hoops, will calm its Fury, and make it subside as suddenly as a Spoonful of Oil thrown into a large foaming Copper of boiling Sugar, takes down its Heat, and prevents the Mischief it might otherwise occasion.

2. A thick Skin, or crusty Scurf, for itself on the Surface, through which the elastic or fermenting Matter is continually breaking. This Crust appears to be the principal Cause of Fermentation; for it keeps in, or prevents the spirituous Part of the Liquor from flying off; and if it be frequently broken, it puts a Check to the Fermentation, and will often intirely stop it, if wholly taken away.

4. This Skin or Crust, which we now call Flowers or Yeast, gradually consumes and precipitates to the Bottom of the Liquor; in which Case 'tis called by the Name of *Fæces* or *Mother*; and after this, the Fluid above it immediately becomes transparent again, ceases to hiss and bubble, has a very penetrating, pungent, spirituous, or vinous Taste and Scent, with a Mixture of Acidity and Sweetness: and now the Liquor, having undergone the Operation of Fermentation, is become Wine.

The Vapour arising from the Liquor, during its Fermentation, ought not to be approached too near, or breathed in too great a Quantity, because it is highly poisonous; and if it prove not mortal, may, at least, render the Person apoplectic or paralytic. We have Accounts in the *French* and *German* Transactions, of People who were immediately struck dead by receiving at the Nose the Fumes that issued from large Vessels of Wine in the State of Fermentation.

And now, if the Liquor thus fermented be stopped down close, it will begin to work or feed upon, and di-

gest its own Lees or Mother, and at length consume them: in which Case we commonly say, the Wine begins to ripen; and afterwards this Mother shoots to the Sides of the containing Vessel, and there appears in the Form of an essential Salt, which is then called *Tartar*.

The Space of Time required for finishing the Fermentation, differs with the Subject-matter, the Season of the Year, the Nature of the Place, and other Circumstances; but 'tis known to be perfectly performed by the several Phenomena just now mentioned.

As soon as ever the Flowers fall to the Bottom, the Vessel should be bunged down; otherwise the volatile Part would fly off, and the fermented Liquor become vapid and flat.

In this State it ought to stand for some Weeks in a cool Place, by which means it will grow stronger and more liquid; for during this time it imbibes and consumes its own *Fæces*, which abound in subtil, spirituous Parts, and grows soft, and loses of its Acidity by throwing off its *Tartar*.

And the longer it is thus suffered to stand, the more Strength it gains, or the more Spirit it will yield in Distillation.

Thus, for Instance: Malt Liquors newly brewed, afford but a small Quantity of inflammable Spirit; but if suffered to remain for some Weeks in the Vessel, till they become fine and clean, they will yield a much greater Proportion: though to avoid so great an Apparatus of Vessels as would then be required, Malt Liquors, brewed in order to make Spirits, are seldom kept, but immediately after Fermentation committed to the Still. And hence we are furnished with a Reason, why all stale, vinous Liquors are stronger, and inebriate

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inebriate sooner, than such are new.

The Physical Effects.

The physical Properties of a vinous Liquor, prepar'd in the manner above describ'd, are those which follow :

1. It will have an inebriating Quality, when received into the Body: and nothing is properly possessed of this Quality, but what has been first fermented.

For if a Person should eat ever such a Quantity of Grapes, or drink ever so freely of Must, he might, indeed, bring a Looseness upon himself by that means, but he would not be fuddled. So likewise to take down large Draughts of sweet Wort, or the Tincture of Malt, might throw one into a violent Vomiting and Flux, but never produce the Symptoms of Drunkenness.

And whatever some pretend, as to Mandrake, Hemlock, Poppies, Opium, and the like, the Effects they have upon the human Body, are rather stupefying than inebriating: but Drunkenness is different from Stupification.

An Over-dose of vinous Liquors makes a Man brisk, lively, and joyful; or disposes him to sing, dance, and be merry; at length, however, his Legs will not support him: and, if the Fit be violent, he grows furious, raving, or paralytic, and so he dies.

But Opium has not these Effects; it brings on a profound Sleep; and he who has taken too much of it, dies lethargic.

2. Wine has the Faculty of heating the Body. Nothing appears to cool the Body more than Currans; yet the Wine prepared from them is very heating. The like is to be understood of Cherries, and all fermentable Bodies, tho' ever so cold;

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for these will afford a vinous Liquor.

3. It is inflammable, and will mix with Water.

4. It contains Tartar, and affords it after the Fermentation is over. This Tartar is the essential Salt of the Vegetable made use of, and differs from the Lees or Mother, being resolvable by Distillation into a Water, a Spirit, two Kinds of Oil, an alkaline Salt, and Earth. All fermented Vegetables afford it. Must yields a feculent Salt, and no Tartar; but if once it works, so as to become pure Wine, it will, in the Space of half a Year, throw off a clean Tartar; which therefore appears to be the Effect of a perfect Fermentation, and accordingly is never obtain'd without it.

5. It retains neither the Colour, Taste, nor Smell of the specific Vegetable, from which it is made. Thus we have seen, that Rosemary affords a quite different Water, after it has been fermented, from what it did before. Thus fermented Hydromel, Malt Liquors, Treacle, Sugar, &c. yield Spirits by Distillation, that cannot be distinguished from one another.

The Grapes of some Countries are as sweet as Honey, and so is their Must before Fermentation; yet the Wine prepared from either, may have little or no Sweetness, and sometimes even gain a Degree of Acidity. It is not easy to believe, that *Rhenish* Wine should proceed from so sweet a Grape as it does.

6. It acquires a somewhat acid and spirituous Taste and Smell. The Taste of Honey or Malt, &c. is sweet, and their Scent scarce perceivable before you commit them to Fermentation; but after having undergone that Operation, they are less sweet, but sharper upon the Tongue,

Tongue, and affect the Nose with a brisk, spirituous or vinous Odour.

7. It contains the volatile Salt and Oil of the Vegetable, attenuated, and reduced into one Spirit; as may appear by the Chymical Analysis of a fermented Subject.

8. It renders the Oil of the Vegetable more volatile than the Water. When an unfermented Vegetable is distilled, the first thing that comes over is Water, and the next the essential Oil: but the contrary is observed after Fermentation; for by that Operation, the Oil is render'd more volatile than the Water, and therefore rises first in Distillation, having been broken and ground so fine by the preceding Operation, as now to come over the Helm, not in its own Form, as before, but as the finest and most volatile Part of the fermented Liquor, capable of uniting with Water.

The Things that promote Fermentation, are;

1. Rest; by means of which the Crust on the Surface may remain unbroken: for 'tis this Crust that prevents the spirituous Part from flying off.

2. A free Admission of the external Air, so that it may come at the internal Parts of the fermenting Fluid: for, according to Mr. Boyle, if a fermenting Liquor be put into his exhausted Receiver, the Operation immediately ceases.

3. A moderate Degree of Warmth; for too great Heat, and too great Cold, are the Bane of Fermentation.

4. A proper Season of the Year; that is, when the Vegetables of the same Species with that made use of are in their Bloom; for it is then their Juices are most in Motion: accordingly we find, when Vines are in the Blossom, the Wines of

former Growths will again spontaneously run into Fermentation. When these several Conditions meet, Fermentation is perform'd to the best Advantage.

The Things which check or hinder Fermentation, are;

1. Too large a Proportion of acid Salts; such as Spirit or Oil of Vitriol, Oil of Sulphur *per Campanam*, Spirit of Salt, &c. Thus, when any Liquor ferments too violently, a few Drops of Oil put into it, or the burning a little Sulphur under or near the Vessel, will immediately check and restrain its Fury.

2. An Over-proportion of fixed Alkalies; such are Salt of Tartar, Pot-ashes, or saponaceous Bodies.

3. Terrestrial Alkalies; as Chalk, Marl, Crabs-eyes, &c.

4. A close stopping up of the Vessel.

5. A great Degree of Cold.

6. A violent Degree of Heat or constant Motion, so as to thicken the fermenting Liquor, and render its Parts hard to be separated.

7. A total Extraction of the Air.

8. A violent Compression of the Air in the Vessel; which, Mr. Boyle has shewn, will stop Fermentation, as well as taking out the Air by means of his pneumatic Engine.

Some short general Directions as to the making of Wines.

Wine is made of Grapes, by stamping them in a Vat, or crushing and expressing the Juice out of them in a Press, and then fermenting, &c.

In the Southern Parts of France, their Method is, for Red-wines, to tread the Grapes, or squeeze them between their Hands, and to let the whole stand, Juice and Husks, till the Tincture be in Colour as they would

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would have it, and then they press it: but, for White-wines, they press the Grapes immediately.

When they have been pressed, they tun the Must, and stop up the Vessel, leaving the Cask empty about the Depth of half a Foot, or better, to give room for its working.

At the End of ten Days they fill this Space with some other proper Wine, that will not provoke it to work again, repeating this every ten Days for some time; new Wine spending itself a little before it be perfect.

About *Paris*, and in the Northern Parts of *France*, they let the Marc and Must stand two Days and Nights for White-wines, and at least a Week for Claret Wines, before they tun it; and while it continues working, they keep it as warm as possible.

Some, upon stopping it up for good and all, roll the Cask about the Cellar to mix it with the Lees; and after it has been settled a few Days, rack it off with great Improvement.

To fine it down, they put in Shavings of green Beach into the Cask; but they first take off all the Rind, and boil them an Hour in Water, to extract their Rankness, and afterwards dry them in the Sun or an Oven. A Peck of these will serve for an Hogshead of Wine: they put it in a gentle Working, and purify it in twenty-four Hours; they also give it an agreeable Flavour.

Some sweeten their Wines with Raisins of the Sun, trod in the Vat with the Grapes, they having been first plump'd by boiling: others by boiling half the Must, scumming it, and tunning it up hot with the other.

Wine is distinguished, from the several Degrees and Steps of its Preparation, into,

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1. *Mere-gutte*, Mother-drop; which is the Virgin Wine, or that which runs of itself out of the Tap of the Vat, before the Grapes are trodden.

2. The Must, Surmoust or Stum, which is the Wine or Liquor in the Vat, after the Grapes have been trodden in the Vat.

3. The press'd Wine, or *Vin de Pressurage*, which is that squeez'd with a Press out of the Grapes half bruised by treading.

4. *Boisson* or Draught-wine. This is made of the Husks left of the Grapes, which are called *Rape* or *Marc*: by throwing Water upon which, and pressing afresh, they make a Liquor for Servants.

Wines are also distinguished into *Vin poux* or *sweet Wine*, which is that which has not yet work'd nor boil'd.

Bouru; that which has been prevented working, by casting in cold Water.

Vin of the Cuve, or *work'd Wine*, i. e. that which has been let to work in the Vat to give it a Colour.

Vin cuit, i. e. *boil'd Wine*, that which has had a Boiling before it work'd, and which by that means still retains its native Sweetness.

Vin passé, i. e. *strained Wine*; that which is made by steeping dry Grapes in Water, and letting it ferment of itself.

The Goodness of Wine consists in its being net, dry, clear, fine, brisk, without any Taste of the Soil, of a clean, steady Colour; in its having a Strength, without being heady; a Body, without being sour; and its keeping, without growing hard.

After Wines have been made, they require to be managed according to their different State and Circumstances. We shall therefore consider them

them under these four general Heads following :

1. The natural Purification or Clarification of Wines, whereby of themselves they pass from the State of Crudity and Turbulency, to that of Maturity, by degrees growing clear, fire, and potable.

2. The unseasonable Workings, Frettings, and other Sicknesses, to which, from either internal or external Accidents, they are afterwards subject.

3. Their State of Declination or Decay, wherein they degenerate from their Goodness and Pleasantness, becoming pall'd, or turning into Vinegar.

4. The several Artifices used to them, in each of these States and Conditions. As to the first, *viz.* the natural Clarification of new Wines, two Things occur, which deserve Consideration, the Manner how, and the Cause by which the same is effected.

As for the Manner, it is to be observed, that Wine, while yet in the Must, is usually put into open Vessels ; the Abundance and Force of the Spirits, *i. e.* the more subtil and active Parts therein contained, being then so great, as not to endure being imprisoned in close ones ; at which time it appears troubled, thick and feculent ; all Parts or Elements of it being violently moved and agitated, so that the whole Mass of the Liquor seems to boil like Water in a Caldron over the Fire.

This Tumult being in some degree compos'd, and the *Gas sylvestre*, (as *Van Helmont* calls it) or wilder Spirit, sufficiently evaporated, they then pour the Must into close Vessels, there to be further defecated by Continuance of the same Motion of Fermentation, reserving the Froth or Flower of it ; and putting the same

into small Casks hooped with Iron, lest otherwise the Force of it might break them.

This Flower, thus separated, is what they call *Stum*, either by Transposition of the Letters in the Word *Must*, or from the Word *Stum*, which in *High Dutch* signifies Mute ; because the Liquor (as one may say) is hindered from that Maturity by which it should speak its Goodness and Wholsomeness.

This being done, they leave the rest of the Wine to finish its Fermentation ; during which, it is probable, that the spirituous Parts impel and diffuse the grosser and feculent Parts up and down in a confused and tumultuous manner, until all being disposed in their proper Regions, the Liquor becomes more pure in Substance, more transparent to the Eye, more piquant and gustful to the Palate, more agreeable to the Stomach, and more nutritive to the Body.

The Impurities being thus separated from the Liquor, are, upon Chymical Examinations, found to consist of Salt, Sulphur, (each of which is impregnate with some Spirits) and much Earth ; which being now dissociated from the purest Spirits, either mutually cohere, coagulate, and affix themselves to the Sides of the Vessels, in form of a stony Crust, which is call'd *Tartar* and *Argol*, or sink to the Bottom in a muddy Substance, like the Grounds of Ale or Beer, which is called the *Lees of Wine* : and this is the Process of Nature in the Clarification of all Wines, by an orderly Fermentation.

As for the principal Agent or efficient Cause of this Operation, it seems to be no other but the Spirit of the Wine itself ; which, according to the Mobility of its Nature, seeking

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seeking after Liberty, restlessly moving every way in the Mass of the Liquor, thereby dissolves that common Tye of Mixture, whereby all the heterogeneous Parts thereof were combined and blended together; and having gotten itself free, at length abandons them to the Tendency of their Gravity, and other Properties: which they soon obeying, each Kind consorts with their like, and betaking themselves to their several Places or Regions, leave the Liquor to the Possession and Government of its noblest Principle the Spirit. For this Spirit, as it is the Life of the Wine, so doubtless it is also the Cause of its Purity and Vigour, in which the Perfection of that Life seems to consist.

From the natural Fermentation of Wines, we pass to the accidental; from their State of Soundness, to that of their Sickness, which is the second general Head.

We have the Testimony of Experience, that frequently even those Wines that are good and generous, are invaded by unnatural and sickly Commotions, or (as the Wine-coopers call them) Workings; during which they are turbulent in Motion, thick of Consistence, unfavoury in Taste, unwholsome in Use; and after which they undergo sundry Alterations for the worse.

The Causes of this may be either internal or external.

Among the internal, the chief Place may be assign'd to the excessive Quantity of Tartar, or of Lees, which contain much Salt and Sulphur, and continually send forth into the Liquor abundance of quick and active Particles, that like Stum, or other adventitious Ferment, put it into a fresh Tumult or Confusion; which if not in time allay'd, the Wine either grows rank or pricking,

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or else turns sour, by reason that the Sulphur being too much exalted above the rest of the Elements or Ingredients, predominates over the pure Spirits, and infects the whole Mass of Liquor with Sharpness or Acidity: or else it comes to pass, that the Spirits being spent and flown away in the Commotion, and the Salt dissolved and set afloat, obtains the Mastery over the other similar Parts, and introduceth Rankness or Ropiness.

Nay, if those Commotions chance to be suppress'd, before the Wine is thereby much depraved; yet do they always leave such ill Impressions, as, more or less, alienate Wine from the Goodness of its former State, in Colour, Consistence and Taste.

For hereby all Wines acquire a deeper Tincture, *i. e.* a thicker Body or Consistence; Sacks and White-wines changing from a clear White to a cloudy Yellow; and Claret losing its bright Red for a dusky Orange-colour, and sometimes for a Tawny. In like manner they degenerate also in Taste, and affect the Palate with Foulness, Roughness and Rancidity very unpleasant.

Among the external are commonly reckon'd the too frequent or violent Motion of Wines, after their Settlement in their Vessels; immoderate Heat, Thunder, or the Report of Cannon, and the Admixture of any exotic Body, which will not symbolize, or agree and incorporate with them, especially the Flesh of Vipers, which has been frequently observed to induce a very great Acidity upon even the sweetest and fullest-bodied *Malaga* and *Canary* Wines.

Yet all these foreign Accidents may be accounted rather Occasions than Causes of the ill Events that follow upon them; because these

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Events seem to arise immediately and principally from the Commotion and Diffusion of the sulphureous and saline Impurities formerly separated from the Liquor, and kept in due Subjection by the genuine and benign Spirits.

This brings us, in the next place, to the third previous Thing considerable, *viz.* the palling or flatting of Wines, and their declining towards Vinegar, before they have attained to their State of Maturity and Perfection.

Of this the greatest and nearest Cause seems to be their Jejuneness and Poverty of Spirits, either native or adventitious.

Native, when the Grapes themselves are of a poor and hungry Kind, or gathered unripe, or nipt by early Frosts, or half starved in their Growth by a dry and unkindly Season, or too full of watery Parts.

Adventitious, when the Liquor, rich perhaps, and generous enough at first, comes afterwards to be impoverished by Loss of Spirits, either by Oppression, or by Exhaustion.

The Spirits of Wine may be oppressed, when the Quantity of Impurities or Dregs, with which they are combined, is so great, and their Crudity, Viscosity and Tenacity so stubborn, that they can neither overcome them, nor deliver them from their Adhesion; but are forced to yield to the Obstinacy of the Matter on which they should operate, and so to remain unactive and clogg'd: as may be exemplified in the coarse Wines of *Moravia*, which, by reason of their great Austerity and Roughness, seldom attain to a due Exaltation of their Spirits; but still remain turbulent, thick, and in a State of Crudity, and therefore easily pall; in which respect they are condemned by some

German Physicians, as bad for generating the Scurvy, and administering Matter for the Stone and Gout, they yielding more of Tartar than other Wines.

The Spirits of Wine may be exhausted or consumed, either suddenly or gradually: Suddenly, by Lightning, which spoils Wine, (as may be conceived) at least, not by Congelation or Fixation of its Spirits; for then such Wines might be capable of being restored by such means as are apt to reinforce and vitalize the Spirits again, contrary to what hath been found by Experience, but perhaps by Disgregation, and setting them to Flight, so as to leave the Liquor dead, pall'd, and never to be revived by any Supply.

Gradually, two ways, *viz.* by unnatural Fermentation; or the ill Effects of which, something has been already said: or by Heat from without, of which we have an Instance in the making of Vinegar, which commonly is done by setting the Vessels of Wine against the Sun, which, beating upon the Mass of Liquor, and rarefying the finer Parts thereof, gives Wings to the fugitive Spirits to fly away together with the purer and more volatile Sulphur, leaving the Remainder to the Dominion of the Salt, which soon debases and infects it with Sourness.

This being the common manner of turning Wine into Vinegar in all Ages, and all Countries, it may be doubted whether Spirit of Wine may be drawn out of Vinegar, notwithstanding it hath been delivered as practicable by *Sennertus* himself.

The Times of the Year when Wines are observed to be most prone to ferment and fret, and then to grow *qually*, (as it is call'd) that is, turbulent and foul, are *Midsummer* and *Allhallontide*, when our Vintners are wont

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wont to rack them from their gross Lees, especially Rhenish, which commonly grows sick in *June*, if not rack'd; and they chuse to do it in the Wane of the Moon, and fair Weather, the Wind being Northerly.

Having thus succinctly recounted the most remarkable Distempers of Wines, guessed at their respective Causes, and touched upon the Times, it is proper to proceed to their usual Remedies; such, at least, as may be collected from Wine-coopers and Vintners; which is the fourth and last Part proposed to be treated of.

To begin therefore with some of the Artifices used to Wines when yet in Must; it is observable, that tho' to raising a Fermentation in them at that time, there is not so much need of any additional Ferment, as there is in the Wort of Ale, Beer, Hydromel, Metheglin, and other sorts of Drinks familiar to us in *England*, because the Juice of the Grape is replenished with generous spirits, sufficient of themselves to begin that Work; yet it is usual in these Countries to put quick Lime either upon the Grapes, when they are pressing, or into the Must; to the end that, by the Force and Quickness of its saline and fiery Particles, the Liquor may be both accelerated and assisted in working.

For the same Reason, perhaps, it is, that the *Spaniards* mix with their Wines, while they are yet flowing from the Press, a certain Thing they call *Gieffo*, which probably is a kind of *Gypsum* or Plaster, whereby the Wines are made more durable, of a paler Colour, and pleasanter Taste: others put into the Cask Shavings of Fur, Oak, or Beech, for the same Purpose; and others Vinegar.

Again, tho' the first Fermentation succeeds generally well, so that the whole Mass of Liquor is thereby

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deliver'd from the gross Lee; yet sometimes it happens, either thro' Scarcity of Spirits at first, or thro' immoderate Cold, that some Part of those Impurities remain confused and floating therein.

Now, in this Case, Wine-coopers put into the Wine certain Things to hasten and help its Clarification: such as, being of gross and viscid Parts, may adhere to the floating Lee, and sinking, carry it with them to the Bottom; of which Sort are, Isinglass and the Whites of Eggs: or such as, meeting with the grosser and earthy Particles of the Lee, both dissociate and sink them by their Gravity; of which Kind are the Powders of Alabaster, calcin'd Flints, white Marble, Roch Alum, &c.

The Clarification of *Hippocras* is usually expedited by putting into it new Milk; which, after a short Space of Time, separates and sinks of itself, carrying with it the Powders of the Species, and grosser Parts of the Wine, after the manner of Things that clarify Liquors by way of Adhesion.

The *Grecians*, at this Day, have a peculiar way of spurring Nature, in fining and ripening their strongest and most generous Wines; and this is done by adding to them, when they begin to work, a proportionate Quantity of Sulphur and Alum; not (as it is very probable) to prevent their fuming up to the Head, and inebriating, according to the Conjecture of that great Man the Lord *St. Albans*; for notwithstanding this Mixture, they cause Drunkenness as soon, if not sooner, than other Wines; nor are Men intoxicated by the Vapours of Wine flying up immediately from the Stomach into the Brain; but only to excite and promote Fermentation, and hasten their Clarification that ensues thereupon; the

the Sulphur perhaps helping to attenuate and divide those gross and viscid Parts, wherewith *Greek Wine* abounds; and the Alum conducing to the speedier Precipitation of them afterwards. And a learned Traveller relates, that some Merchants put into every Pipe of their *Greek Wine*, a Gill, or thereabouts, of the Chymical Oil of Sulphur, in order to preserve it the longer clear and sound.

Which tho' it is very probable, because the Sulphur is known to resist Putrefaction in Liquors, yet one would decline the Use of Wines so preserved, unless in time of Pestilential Infection.

But of all Ways of the hastening the Clarification and Ripening Wine, none seems to be more easy, or less noxious, than that borrowed from one of the Ancients by the Lord Chancellor *Bacon*, which is by putting the Wine into Vessels well stopped, and letting it down into the Sea.

But how shall we reconcile this Experiment to that common Practice of both the Ancients and Moderns, of keeping Wine in the Must a whole Year round, only by sinking the Cask for thirty or forty Days in a Well, or deep River?

That this Practice was very ancient, is manifest from that Discourse of *Plutarch*, *Quæst. Natur.* 27. about the Efficacy of Cold upon Must; whereof he gives this Reason, That Cold, not suffering the Must to ferment, by suppressing the Activity of the Spirits therein contained, preserves the Sweetness thereof a long time. Which is not improbable, because Experience teaches, that such as make their Vintage in a rainy Season, cannot get their Must to ferment well in a Vault, unless they cause great Fires to be made near

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the Casks; the Rain mixed with the Must, together with the ambient Cold, hindering the Motion of Fermentation, which arises chiefly from Heat.

That the same is frequent at this Day also, may be collected from what Mr. *Boyle* has observed in his *History of Cold*, on the Relation of a *Frenchman*, viz. That the way to keep Wine long in the Must, (in which the Sweetness makes many to desire it) is to tun it up immediately from the Press; and, before it begins to work, to let down the Vessels, closely and firmly stopped, into a Well or deep River, there to remain for six or eight Weeks; during which time the Liquor will be so confirm'd in its State of Crudity, as to retain the same, together with its Sweetness, for many Months after, without any sensible Fermentation.

But it may be objected, How can these two so different Effects, the Clarification of new Wine, and the Conservation of Wine in the Must, be derived from one and the same Cause, the Cold of the Water?

But this may be conceived without much Difficulty; for it seems not unreasonable, that the same Cold which hinders Must from fermenting, should yet accelerate and promote the Clarification of Wine after Fermentation: In the first, by giving a Check to the Spirit, before it begins to move and act upon the crude Mass of Liquor, so that it cannot in a long time after recover Strength enough to work: in the latter, by keeping in the pure and genuine Spirit, otherwise apt to exhale; and rendering the flying Lee more prone to subside, and so making the Wine much sooner clear, fine, and potable. Thus much concerning the Helps of new Wine.

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The general and principal Remedy for the preternatural or sickly Com-motions incident to Wines after their first Clarification, and tending to their Impoverishment or Decay, is Rack-ing, *i. e.* drawing them from their Lees into fresh Vessels.

Which yet being sometimes in-sufficient to preserve them, Vintners find it necessary to pour into them a large Quantity of new Milk, as well to blunt the Sharpness of the sulphureous Parts now set afloat and exalted, as to precipitate them, and other Impurities, to the Bottom, by Adhesion.

But taught by Experience, that by this means the genuine Spirits of the Wine also are much flatted and im-paired (for the Lee, tho' it makes the Liquor turbid, doth yet keep the Wine in Heart, and conduce to its Duration); therefore lest such Wines should pall and die upon their Hands, as of Necessity they must, they draw them for Sale as fast as they can vend them.

For the same Disease they have divers other Remedies, particularly accommodated to the Nature of the Wine that needs them. To instance in a few :

For *Spanish* Wines disturbed by a flying Lee, they have this Receipt : Make a *Parell* (as they call it) of the Whites of Eggs, Bay-salt, Milk, and Conduit-water ; beat them well together in a convenient Vessel ; then pour them into the Pipe of Wine, (having first drawn out a Gallon or two to make room) and blow off the Froth very clean : hereby the Tumult will, in two or three Days, be recomposed, the Liquor refined, and the Wine drink pleasantly, but will not continue to do so long ; and therefore they advise to rack it from the milky Bottom, after a Week's Settlement, lest other-

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wise it should drink foul, and change Colour.

If Sacks or *Canary* Wines chance to boil over, draw off four or five Gallons ; then putting into the Wine two Gallons of Milk, from which the Cream hath been skimmed, beat them till they be thoroughly mixed together, and add a Pennyworth of Roch Alum, dry'd in a Fire-shovel, and powder'd, and as much of white Starch ; after this take the Whites of eight or ten Eggs, a Handful of Bay-salt, and having beaten them together in a Tray, put them also into the Wine, filling up the Pipe again, and letting the Wine stand two or three Days, in which time the Wine will recover to be fine and bright to the Eye, and quick to the Taste ; but you must be sure to draw it off that Bottom soon, and spend it as fast as you can.

For Claret, in like manner distem-pered with a flying Lee, they make use of this Artifice :

They take two Pounds of the Powder of Pebble-stones, baked in an Oven, the Whites of ten or twelve Eggs, a Handful of Bay-salt ; and having beaten them well together, in two Gallons of the Wine, they mix them with that in the Cask, and after two or three Days draw off the Wine from the Bottom.

The same Parell serves also for White-wines upon the Fret by the Turbulency and rising of their Lee.

To cure Rhenish of its Fretting, (to which it is most prone a little after *Midsummer*, as was before observed) they seldom use any other Art but giving it Vent, and cover-ing the oaken Bung with a Tile or Slate, from which they carefully wipe off the Filth purged from the Wine by Exhalation ; and after the

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Commotion is by this means composed, and much of the fretting Matter cast forth, they let it remain quiet for a Fortnight, or thereabouts, and then rack it into a fresh Cask, newly fumed with a sulphurated Match.

As for the various Accidents that frequently ensue, and vitiate Wine (after those before-mentioned Re-boilings, notwithstanding their Suppression before they were incurable); you may remember they have all been referred to such as alter and deprave Wines, either in Colour or Consistence, or Taste or Smell. Now for each of these Maladies our Vintners are provided of a Cure:

To restore *Spanish* and *Austrian* Wines grown yellow or brownish, they add to them sometimes Milk alone, and sometimes Milk and Icinglass well dissolved therein; sometimes Milk and white Starch; by which they force the exalted Sulphur to separate from the Liquor, and sink to the Bottom; so reducing the Wine to its former Clearness and Whiteness.

The same Effect they produce with a Composition of *Fleur-de-lys* Roots and Salt-petre, of each four or five Ounces, the Whites of eight or ten Eggs, and a competent Quantity of common Salt, mixed and beaten in the Wine.

To amend Claret decay'd in Colour, first they rack it upon a fresh Lee, either of *Alicant* or red *Bordeaux* Wine; then they take three Pounds of Turnsole, and steep it all Night in two or three Gallons of the same Wine; and having strained the Infusion through a Bag, they pour the Tincture into the Hogshhead (sometimes they suffer it first to fine itself in a Rundlet); and then cover the Bung-hole with a Tile, and let it stand for two or three

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Days, in which time the Wine usually becomes well-coloured and bright.

Some use only the Tincture of Turnsole.

Others take half a Bushel of full-ripe Elder-berries, pick them from their Stalks, bruise them, and put the strained Juice into a Hogshhead of discoloured Claret; and so make it drink brisk, and appear bright.

Others, if the Claret be otherwise sound, and the Lee good, over-draw three or four Gallons; then replenish the Vessel with as much good Red-wine, and roll it upon its Bed, leaving it reversed all Night; and then next Morning they turn it again, so as the Bung-hole may be uppermost, which stopped, they leave the Wine to fine.

But in all these Cases they observe to set such newly recovered Wines abroad the very next Day after they are fined, and to draw them for Sale speedily.

To correct Wines faulty in Consistence, *i. e.* such as are lumpish, foul, or ropy:

They generally make use of the Powders of Burnt-alum, Lime, Chalk, Plaster, *Spanish* white calcin'd Marble, Bay-salt, and other the like Bodies, which cause a Precipitation of the gross and viscid Parts of the Wine then afloat. As for Example:

For Attenuation of *Spanish* Wines that are foul and lumpish, having first rack'd them into a newly scented Cask, they make a Parell of Burnt-alum, Bay-salt, and Conduit-water; then they add to these a Quart of Bean-flour or Powder of Rice (and if the Wine be always brown and dusky, Milk, otherwise not); and beating all these well together with the Wine, blow off the Froth, and cover the Bung with a clean Tile or

Stone. Lastly, they again rack the Wine after a few Days, and put it into a Cask well scented.

The Manner of scenting Casks is as follows :

They take four Ounces of Brimstone, one Ounce of Burnt-alum, two Ounces of *Aqua Vitæ* ; these they put together in an earthen Pan or Pipkin, and hold them over a Chafing-dish of glowing Coals, till the Brimstone is melted and runs ; then they dip therein a little Piece of new Canvas, and instantly sprinkle thereon the Powders of Nutmegs, Cloves, Coriander and Anise-seeds. This Canvas they fire, and let it burn out in the Bung-hole, so as the Fume may be received into the Vessel ; and this is said to be the best Scent for all Wines.

To prevent the Foulness and Ropiness of Wines, the old *Romans* used to mix Sea-water with their Must.

To cure the Ropiness of Claret, the Vintners, as well *French* as *English*, have many Remedies ; of which these that follow are the most usual :

First, they give the Wine a Parell, then draw it from the Lee, after the Clarification by that Parell ; this done, they infuse two Pounds of Turnsole in good Sack all Night ; and the next Day putting the strained Infusion into a Hogshead of Wine with a Spring Funnel, leave it to fine, and after draw it for excellent Wine.

Another is this : They make a Lee of the Ashes of Vine-branches, or of oaken Leaves, and pour it into the Wine hot ; and after stirring, leave it to settle : the Quantity of a Quart of Lee to a Pipe of Wine.

A third is only Spirit of Wine ; which, put into a muddy Claret, serves to the Refining it effectually

and speedily ; the Proportion being a Pint of Spirit to a Hogshead ; but this is not to be used in sharp and eager Wines.

When White-wines grow foul and tawny, they only rack them on a fresh Lee, and give them time to fine.

For the mending of Wines that offend in Taste, Vintners have few other Correctives, but what conduce to Clarification ; nor do they indeed much need Variety in the Case, seeing all Unfavouriness of Wines whatever proceed from their Impurities set afloat, and the Dominion of others, their sulphureous or saline Parts, over the finer and sweeter, which Causes are removed chiefly by Precipitation.

For all Clarification of Liquors may be referr'd to one of these three Causes :

1. Separation of the grosser Parts of the Liquor from the finer.
2. The equal Distribution of the Spirits of the Liquor, which always renders Bodies clear and untroubled.
3. The refining of the Spirit itself.

And the two latter are Consequents of the first, which is effected chiefly by Precipitation, the Instruments whereof are Weight and Viscosity of the Body mix'd with it ; the one causing it to cleave to the gross Parts of the Liquor flying up and down in it, the other sinking them to the Bottom.

But this being more than Vintners commonly understand, they rest not in Clarification alone, having found out certain Specifics, as it were, to palliate the several Vices of Wines of all Sorts, which make them disgusting. Of these I shall recite two or three of the greatest Use and Esteem among them.

To

To correct Rankness, Eagerness, and Pricking of Sacks, and other sweet Wines, they take twenty or thirty of the whitest Lime-stones, and slack them in a Gallon of the Wine; then they add some more Wine, and stir them together in a half Tub, with a Parelling-staff; next, they pour this Mixture into the Hoghead, and having again used the Parelling Instrument, leave the Wine to settle, and then rack it.

This Wine may probably be no ill Drink for gross Bodies, and Rheumatic Pains; but injurious to Good-fellows of a hot and dry Constitution, and meagre Habits.

Against the Pricking of *French* Wines, they prescribe this easy and cheap Composition: Take of the Powder of *Flanders* Tile one Pound, of Roch-alum half a Pound; mix them, and beat them well, with a convenient Quantity of Wine; then put them into the Hoghead, as the former.

When their *Rhenish* Wines prick, they first rack them off into a clean and strongly-scented Cask, or Vat; then they add to the Wine eight or ten Gallons of clarified Honey, with a Gallon or two of Skim-milk; and beating all together, leave them to settle.

Sometimes it happens, that Claret loses much of its Briskness and Piquantness; and in such Case they rack it upon a good Lee of Red-wine, and put into it a Gallon of Sloes or Bullace, which after a little Fermentation and Rest, makes the Wine drink brisk and rough.

To meliorate the Taste of hungry and too eager White-wines; they draw off three or four Gallons of it, and infusing therein as many Pounds of *Malaga* Raisins stoned, and bruised in a Stone Mortar, till the Wine has sufficiently imbibed their Sweetness

and Tincture, (which it will do in a Day's time) they run it through an Hippocras-bag, then put it into a fresh Cask well scented, together with the whole Remainder of the Wine in the Hoghead, and so leave it to fine.

To help stinking Wines, the general Remedy is racking them from their old and corrupt Lee: Besides which, some give them a fragrant Smell or Flavour, by hanging in them little Bags of Spices, such as Ginger, Zedoary, Cloves, Cinamon, Orrice-roots, Cubebs, Grains of Paradise, Spikenard, and other Aromatics.

Others boil some of these Spices in a Pottle of good sound Wine of the same Sort, and tun up the Decoction hot.

Others correct the ill Savour of rank-lee'd *French* Wine with only a few Cinamon-canes hung in them.

Others again, for the same Purpose, use Elder-flowers and Tops of Lavender.

Having thus run over the Vintners Dispensatory, and described many of their principal Receipts or Secrets, for the Cure of the acute Diseases of Wine, we shall come to the fourth Head, which contains Medicaments proper for their chronic Distempers, *viz.* Loss of Spirits, and Decay of Strength.

Concerning these, therefore, it is observable, that as when Wines are in preternatural Commotions, from an Excess and Predomination of their sulphureous Parts, the grand Medicine is to rack them from their Lees; so on the contrary, when they decline and tend towards paling, by reason of the Scarcity of their Spirits and Sulphur, the most effectual Preservative is to rack them upon other Lees, richer and stronger than their own; that being from

thence supply'd with the new Spirits, they may acquire somewhat more of Vigour and Quickness.

I say, Preservative, because there is, in Truth, no restoring of Wines after they are perfectly pall'd and dead; for nothing that is past Perfection, and hath run its natural Race once, can receive much Amendment.

But besides reinforcing of impoverished Wines by new and more generous Lees, there are sundry Confections, by which also, as by Cordials, the languishing Spirits of many of them may be sustained, and to some Degree recruited: of which the following are Examples.

When Sacks begin to languish, (which doth not often happen, especially in this City, where it is drank in Plenty) they refresh them with a cordial Syrup, made of most generous Wine, Sugar and Spices.

For Rhenish and White-wines, a simple Decoction of Raisins of the Sun, and a strong-scented Cask, usually serve the Turn.

For Claret inclining to a Consumption, they prescribe a new and richer Lee, and the Shavings of Fir-wood; that the Spirit being recruited by the additional Lee, may be kept from exhaling by the unctuous Spirit of the Turpentine.

This Artifice is used in *Paris* in the most delicate and thin-bodied Wines of *France*, and is very probably the Cause of that exceeding Dulness and Pain of the Head, which always attends Debauches with such Wines.

Nor is it a modern Invention, but well known to, and frequently used by the *Romans*, in the Time of their greatest Wealth and Luxury: for *Pliny* (*Hist. Nat. lib. 14. cap. 2.*) takes singular Notice of the Custom of the *Italian* Vintners, in mixing with their Wines Turpentine of several Sorts.

The *Grecians* long before had their *Vina picata* and *resinata*, as is evident by the Commendation of such Wines by *Plutarch*, and the Prescription of them to Women, in some Cases, by *Hippocrates*; and they were so much delighted with their *Vinum piscites*, that they consecrated the Pitch-tree to *Bacchus*. But I shall next take some Notice of the more disingenuous Practices of Vintners in the Transmutation or Sophistication of Wines, which they call *Trickings* or *Compassings*.

They transform poor *Rochelle* and *Coniac* White-wines into Rhenish; Rhenish into Sack; the Lags of Sack and Malmseys into Muscadels.

They counterfeit Raspie Wine with *Fleur-de-lys* Roots; Verdea with Decoctions of Raisins: they sell decayed *Xeres*, vulgarly *Sberry*, for *Lusenna* Wine; in all these Impostures deluding the Palate so neatly, that few are able to discern the Fraud; and keeping these *Arcana* so close, that few can come to the Knowledge of them.

As for their Metamorphosis of White into Claret, by dashing it with Red, nothing is more commonly either done or known.

For their Conversion of White into Rhenish, they have several Artifices to effect it, among which this is the most usual:

They take a Hog'shead of *Rochelle*, or *Coniac*, or *Nants* White-wine, rack it into a fresh Cask strongly scented; then give the White Parell: put into it eight or ten Gallons of clarify'd Honey, or forty Pounds of coarse Sugar; and beating it well, leave it to clarify.

To give this Mixture the delicate Flavour, they sometimes add a Decoction of Clary-seeds, or of *Galicum*; of which Drugs there is an incredible Quantity used yearly at *Dort*,

Dort, where the Staple of Rhenish Wines was ; and this is that Drink with which the *English* Ladies were wont to be so delighted, under the specious Name of *Rhenish in the Must*.

The Manner of making *Adulterate Bastard* is thus :

Take four Gallons of White-wine, three Gallons of old *Canary*, five Pounds of *Baird* Syrup ; beat them well together, put them into a clean Rundlet well-scented, and give them time to fine.

Sack is made of Rhenish, either by strong Decoctions of *Malaga* Raisins, or by a Syrup of Sack, Sugar, and Spices.

Muscadel is sophisticated with the Lags of Sack or Malmsey, thus :

They dissolve it in a convenient Quantity of Rose-water ; of Musk, two Ounces ; of *Calamus Aromaticus* powder'd, one Ounce ; of Coriander beaten, half an Ounce : and while this Infusion is yet warm, they put it into a Rundlet of old Sack, or Malmsey ; and this they call a *Flavour for Muscadel*.

There are many other Ways of adulterating Wines in this City ; but because they all tend to the above-mentioned Alterations, and are not so general, I shall pass them over, and mention the Observations of a certain curious Author on this Subject.

The Mystery of Wines consists in the making and meliorating of Natural Wines.

Melioration is either of sound or vicious Wines. Sound Wines are better'd,

1. By Preserving.
2. By timely Fining.
3. By mending Colour, Smell, or Taste.

1. To preserve Wines, Care must be taken, that after the Pressing they may

ferment well ; for without good Fermentation they become *qually*, i. e. cloudy, thick, and dusky, and will never fine of themselves, as other Wines do ; and when they are fined by Art, they must be speedily spent, or else they will become *qually* again, and then will not be recoverable by any Art.

The principal Impediments of the Fermentation of Wines, after pressing the Grapes, are either their Unripeness, when gather'd, or the Mixture of Rain-water with them, as in wet Vintages, or else thro' the Addition of Water to rich Grapes. The *Spaniards* use *Giesse*, to help the Fermentation of their *Canary* Wines.

To preserve *Spanish* Wines, and chiefly *Canary*, and therefore principally that which is *Razie*, which will not keep so long, they make a Layer of Grapes and *Giesse* ; whereby it acquires a better Durance and Taste, and a whiter Colour, most pleasing to the *English*.

Razie Wine is so call'd, because it comes from Rhenish Vine-cuttings, sometimes renew'd. The Grapes of this Vine are fleshy, yielding but a little Juice.

The *French* and Rhenish Wines are chiefly and commonly preserved by the Match, thus used at *Dort* in *Holland*.

They take twenty or thirty Pounds of Brimstone, rack into it melted, as Cloves, Cinamon, Mace, Ginger, and Coriander-seeds ; and some, to save Charges, use the Reliques of the Hippocras-bag ; and having mix'd these well with the Brimstone, they draw thro' this Mixture long square narrow Pieces of Canvas ; which Pieces, thus drawn thro' the said Mixture, they light, and put into the Vessel at the Bung-hole, and presently stop it close. Great Care is to be had in proportioning the Brimstone to the Quantity and Quality

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Quality of the Wine ; for too much makes it rough : this Smoaking keeps the Wine long white, and good, and gives it a pleasant Taste.

There is another Way for *French* and *Rhenish* Wines, *viz.* Firing it. 'Tis done in a Stove, or else a good Fire made round about the Vessel, which will gape wide, yet the Wine runs not out : 'twill boil, and afterwards may soon be rack'd.

Secondly, For timely Fining of Wines. All Wines in the Must are more opacous and cloudy. Good Wine soon fines, and the gross Lees settle quickly; and also the flying Lee in time. When the grosser Lees are settled, they draw off the Wine; this is call'd *Racking*. The usual Times for Racking are *Midsummer* and *Alballowtide*.

The Practice of the *Dutch* and *English* to rid the Wine of the flying Lees speedily, (and serves most for *French* and *Spanish* Wine) is thus perform'd:

Take of Icinglass, half a Pound ; steep it in half a Pint of the hardest *French* Wine that can be got, so that the Wine may fully cover it ; let them stand twenty-four Hours, then pull and beat the Icinglass to pieces, and add more Wines ; four times a Day squeeze it to Jelly, and as it thickens, add more Wine. When it is full, and perfectly jellied, take a Pint or Quart to a Hoghead, and so proportionably : then over-draw three or four Gallons of that Wine you intend to fine, which mix well with the said Quantity of Jelly; then put this Mixture to the Piece of Wine, and beat it with a Staff, and fill it top-full.

Note, That *French* Wines must be bung'd up very close, but not the *Spanish* ; and that Icinglass raises the Lees to the Top of strong Wines ; but in weaker, precipitates them to the Bottom.

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They mend the Colour of sound Clarets by adding thereto Red-wine, Tent, or *Alicant*, or by an Infusion of Turnsole, made in two or three Gallons of Wine, and then putting it into the Vessel, to be then (being well stopp'd) rolled for a Quarter of an Hour.

This Infusion is sometimes twice or three times repeated, according as more Colour is to be added to the Wine ; about three Hours Infusion of the Turnsole is sufficient, but then it must be rubb'd and wring'd.

Claret over-red is amended with the Addition of White-wines.

White-wines coming over sound, but brown, are thus remedied :

Take of Alabafter-powder, over-draw the Hoghead, three or four Gallons ; then put this Powder into the Bung, and stir and beat it with a Staff, and fill it top-full. The more the Wine is stirr'd, the finer it will come upon the Lee, that is, the finer it will be.

To colour Sack white ; take of white Starch two Pounds, of Milk two Gallons, boil them together two Hours ; when cold, beat them well with a Handful of white Salt, and then put them into a clean, but sweet Butt, beating them with a Staff, and the Wine will be pure and white.

One Pound of the before-mention'd Jelly of Icinglass takes away the Brownness of *French* and *Spanish* Wines, mix'd with two or three Gallons of Wine ; according as it is brown and strong, more or less to be used. Then over-draw the Piece of Wine about eight Gallons, and use the Rod ; then fill the Vessel full, and in a Day or two it will fine and be white, and mend, if *qually*.

The first Buds of *Ribes nigra*, i.e. Black Currans, infused in Wines, especially *Rhenish*, make it diuretic, and

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and more fragrant in Smell and Taste, and so doth Clary.

The Inconvenience is, that the Wine becomes more heady; a Remedy for which is Elder-flowers added to the Clary, which also betters the Fragrancy thereof, as it is manifest in Elder-vinegar. But these Flowers are apt to make the Wine ropy.

To help brown *Malaga's* and *Spanish* Wines; take Powder of Orrice-Roots and Saltpetre, of each four Ounces; the Whites of eight Eggs, to which add as much Salt as will make a Brine; put this Mixture into Wine, and mix them with a Staff.

To meliorate muddy and tawny Clarets; take of Rain-water two Pints, the Yolks of eight Eggs, Salt an Handful, beat them well, let them stand six Hours, before you put them into the Cask; then use the Rod, and in three Days it will come to itself.

To amend the Taste and Smell of *Malaga* Wine; take of the best Almonds four Pounds, make an Emulsion of them with a sufficient Quantity of the Wine to be cured; then take the Whites and Yolks of twelve Eggs; beat them together with an Handful of Salt, put them into the Pipe, using the Rod.

To amend the Smell and Taste of *French* and *Rhenish* Wines, which are foul; take one Pound of Honey, an Handful of Elder-flowers, an Ounce of Orrice-powder, one Nutmeg, a few Cloves to an Auln of the Wine, boil them in a sufficient Quantity of the Wine to be cured, to the Consumption of half; and when it is cold, strain it, and use it with the Rod: some add a little Salt. If the Wine be sweet enough, add one Pound of the Spirits of Wine to a Hoghead, and give the

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Cask a strong Scent. Spirit of Wine makes any Wine brisk, and fines it, without the former Mixture.

A Lee of the Ashes of Vine-branches, viz. a Quart to a Pipe, being beaten into Wine, cures the Ropiness of it, and so infallibly doth a Lee of oaken Ashes.

For *Spanish* ropy Wine, rack it from the Lees into a new-scented Cask; then take of Alum, one Pound; of Orrice-roots powder'd, half a Pound: beat them well into the Wine with a Staff: some add fine and well-dried Sand, put warm to the Wine. If the Wine besides prove brown, add three Pottles of Milk to a Pipe; *alias*, the Spaen cures ropy Wine, before it begins to fret.

Herring Roes preserve any Stum Wines.

To other *Rhenish* Wines when fretting. It is commonly in *June*, that Wine begins to ferment, and grow sick; then have a special Care not to disturb it, either by removing, filling the Vessel, or giving it Vent; only open the Bung, which cover with a Slate; and as often as the Slate is foul, cleanse it and the Bung from their Filth; and when the Fermentation is past, which you shall know by applying your Ear to the Vessel, then give it Rest ten or twelve Days, that the grosser Lees may settle; then rack it into a fresh-scented Cask.

This Mixture meliorates vicious Wines both in Smell and Taste, especially *French*: take of the best Honey one Part, of Rain-water two Parts, and one Third of sound old Wine of the same Kind; boil them on a gentle Fire to a Third Part, scumming them often with a clean Scummer (for which Purpose they have a Pail of fair Water standing by, to rince it in); then put this Mixture hot into a Vessel of fit Capacity, and

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and let it stand unbung'd till cool : others, to better this, put in a Bag of Spices. This Mixture is, by the *Dutch*, call'd *Soet*, and will serve also to fine any Wine, new or old.

2. It will mend the hard Taste of Wine, *i. e.* putting a Gallon thereof to a Hoghead, and using the Rod, and then let it rest five or six Days at the least; but if mild enough, add white Mustard-seed bruised.

To mend and preserve the Colour of Clarets; take red Beet-roots *q. s.* scrape them clean, and cut them into small Pieces; then boil them in *q. s.* of the same Wine, to the Consumption of the third Part; scum it well, and when cool, decant off what is clear, and use the Rod.

Alias: Take of Wine and Honey of each two Pounds, Rain-water a Pottle, twelve Beet-roots, ripe Mulberries four or five Handfuls; boil them to half, and when cool, decant, &c. as above.

To preserve Claret rack'd from the Lees; take to a Tierce ten Eggs, make a small Hole in the Top of the Shells; then put them into the Wine, and all will be consumed.

To prevent Souring of *French* Wines; take Grains of Paradise *q. s.* beat them in a Pan, and hang them or put them loose in a Vessel. Some use Lavender-tops.

To help sour *French* Wine; take of the best Wheat four Ounces, and having been boil'd in fair Water till it break, when cold, put it into a Vat in a Bag, and use the Rod.

Alias: Take five or six Cinamon-canes; bung them up well.

To help *Spanish* four Wines; first rack the Wine into a clean Cask, and fill it up with two or three Gallons of Water, and add to it four Ounces of burnt Chalk; then rack it off

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after three or four Days, and fill it up again with Rain-water, if the first time doth not do it.

Some use Loam or Plastering; if these Ingredients make the Wine bitter, correct the Fault with Nutmegs and Cloves.

To help stinking Wines; take Ginger half an Ounce, Zedoary two Drams; powder them, and boil them in a Pottle of good Wine, which put scalding hot into the Vat; bung it up, and let it lie: The Species of *Diambrae* and *Diamoscu Dulc.* do the same; and so Nutmegs and Cloves, which also give a kind of Raciness.

To help Wine that hath an ill Savour from the Lees; first rack it into a clean Cask, and if Red or Claret, give it a fresh Lee of the same Kind; then take of Cloves, Cinamon, Ginger, two Ounces; Orrice-root, four Ounces; powder them grossly, hang them in a Bag, and taste the Wine once in three Days; and when it is amended, take out the Bag.

Some do it thus: Take of Cloves, half a Pound; Mastich, Ginger, Cubebs, of each two Ounces; *Spica Nardi*, three Drachms; Orrice-root, half a Pound; make thereof a fine Powder, which put loose into the Vat, and use the Rod, and make a good Fire before it.

Firing of Wines in *Germany* is thus performed: They have in some Vaults three or four Stoves, which they heat very hot; others make Fires almost before every Vat; by this means the Must fermenteth with that Vehemency, that the Wine appears between the Staves; when this Ebullition, Fermentation, and Working, cease, they let the Wine stand some Days, and then rack it. This Firing is only used in cold Years, when the Wine falls out green.

Stum

Stum is nothing else but pure Wine kept from fretting by often racking, and matching it in clean Vessels, and strongly scented, *i. e.* new-matched; by means whereof it becomes as clear or clearer than any other Wine, preserving itself from both its Lees by Precipitation of them; but if thro' Neglect it once fret, it becomes good Wine.

The Bung of the Vessel must be continually stopp'd, and the Vessels strong, lest they break. A little *Stum* put to Wine decay'd, makes it ferment afresh, and gives Life and Sweetness to it; but offends the Head and Stomach, torments the Guts, and is apt to cause Loosenesses, and some say, Barrenness in Women.

To fine Wine presently: Fill a Cask with Shavings or Chips of Beech, or Oak (which are best); this is to be done with much Art, or else it seldom hits right, but lasteth long; put these Chips into a Cask, which is call'd by the *Dutch*, *Een Spaen*, *i. e.* a Chip, into which they pour as much Wine as the Cask will hold, and in twenty-four Hours the Wine will be fine. Or a Quart of Vinegar in three Days will fine a Hoghead of Wine.

To set old Wine a fretting, being deadish and dull of Taste: Take of *Stum* two Gallons to a Hoghead, put it hot upon the Wine; then set a Pan of Fire before the Hoghead, which will then ferment till all the Sweetness of the *Stum* is communicated to the Wine, which thereby becomes brisk and pleasant.

Some use this *Stumming* at any time; some in *August* only, when the Wine hath a Disposition to fret of itself, more or less *Stum* to be added, as the Wine requires.

The best Time to rack Wine is in the Decrease of the Moon, and when

the Wine is free from fretting; the Wind being at North-east or North-west, and not at South, the Sky serene, free from Thunder and Lightning.

Another Match for *French* Clarets, and *Spanish* Wines: Take Orrice-Roots, Mastich, and Brimstone, of each four Ounces; Cloves, two Ounces; ordering it as above in Matching Wines; this will serve for all Wines, adding, if you please, Nutmegs, Ginger, Cinamon, and other Spices; double the Quantity of Orrice-root is to be used for *Spanish* Wines.

To help *Malaga's*, which will not fine: Take of crude Tartar powder'd, sifted, and dried, two Pounds; mix it with the Whites of six Eggs; dry, powder, and sift them again; then over-draw the Pipe as much as will serve to mix with this Powder; and fill the Pipe therewith, beating it with a Staff as before, and this Wine will be fine in ten Days.

Another speedy Way to fine *French* Wines: Hang a Piece of Scent in the Cask, and when it is burnt out, put in a Pint of the best Spirit of Wine, and stir it about. Some add a little Salt well dried; this fines the Wine in twenty-four Hours.

To keep Must a Year: Take Must, put it into a Cask pitch'd within and without, half full; stop the Bung-hole close with Mortar.

Others sew the Cask in Skins, and sink it for thirty Days into a Well or River; or else a Garland of *Polium Montanum* hung in a Vessel; or rub the Inside of the Vessel with Cheese: all these preserve Rhenish Must.

Alum put into a Hog's-bladder, keeps Wine from turning flat, faint, or brown; and beaten with the Whites of Eggs, removes its Ropiness.

Flat

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Flat Wines are recover'd with Spirit of Wine, Raisins, and Sugar or Melasses ; and Sacks, by drawing them on fresh Lees.

Our Wine-coopers of later Times use vast Quantities of Sugar and Melasses, to make them drink brisk and sparkling, and to give them Spirits, and also to mend their bad Tastes ; all which Raisins, and Cute, and Stum perform.

Country Vintners feed their fretting Wines with raw Beef ; and in Town, their *Canaries* with *Malaga*, which is added more or less to all *Canaries*.

The Composition of Wines is manifold, the Vintners usually drawing out of two or three Casks for one Pint, to accommodate it to the Palate of those that drink it. Most of the *Canary* is made with *Xerez* Sack.

As for compounded Wines, as *Muscadine* and *Hippocras* ; the former is usually made with thirty Gallons of Cute, which is Wine boil'd to the Consumption of half, or the Lees and Droppings boiled and clarified ; its Flavour is made of Coriander-seeds prepared, and Shavings of Cypress-wood.

Some, instead of Cute, make it of Sugar, Melasses and Honey, or mix them with the Cute.

Hippocras may be made as follows :

Take of Cardamums, Carpobalsamum, of each half an Ounce ; Coriander-seeds prepared, Nutmegs, Ginger, of each two Ounces ; Cloves, two Drams ; bruise and infuse them forty-eight Hours in *Xerez* and White-wine, of each a Gallon, often stirring them ; then add thereto of Milk three Pints ; strain it thro' an *Hippocras*-bag, and sweeten it with a Pound of Sugar-candy.

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A certain Modern gives the following Directions for the ordering and improving of Wines.

When your Wines are press'd, put them into Casks that have been well cleansed and rinsed two or three Days before with Water, in which the Leaves or Flowers of Peaches have been infused, which gives them an agreeable Flavour.

N.B. Put White-wines into new Casks, lest old ones change their Colour.

If your Grapes are not ripe enough, or of the last Gathering, or of a small Body, about three Weeks after they are put up in Casks, roll them five or six times a Day, for four or five Days following ; then two or three times a Day, for three or four Days following ; once a Day, for ten Days after that ; thence once in three or four Days ; and (if your Grapes were gathered very green) continue rolling them in the whole about five or six Weeks.

N.B. This Rolling is to be performed discretionally, in proportion to the Ripeness or Greenness of the Grapes when gathered ; viz. If ripe, very little Rolling will serve, once in four or five Days for a Month is sufficient.

This Rolling heightens the Fermentation, heats the Wine, causing it to purge and purify, and helps to ripen it better than any Method yet known. Besides, this mixing it with the Lee, sweetens and strengthens it, and renders it more palatable.

When your Wines ferment, (which they will do in a few Days) take out the Bung of each Cask, covering it with a Cloth laid hollow over the Hole, to prevent Dirt from falling therein.

Take off the Froth, which works like Yeast, and put a little into those Casks

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Casks which are backward in fermenting, and it will greatly help their Fermentation.

It is to be observed, that the finest Wines ferment the soonest, the rest in proportion to their Goodness. The Fermentation will continue about ten or twelve Days at least.

When the Fermentation is over, (which you will know by the Froth ceasing) fill up each Cask within two Inches, and bung it up close, opening at the same time a small Vent-hole, to carry off what may be thrown up by the Fermentation's not being quite ceased.

Continue filling up, as before, for ten or twelve Days, till you are sure the Wine has done Fermentation, lest the Foulness, which should work thro' the Vent-hole, sink down for want of Passage, and foul the Wine.

After these twelve Days are expired, fill the Cask within one Inch, once in six Days for a Month; after which, once in fifteen Days for three Months. For tho' the Fermentation will be quite over long before this Time, yet the Casks must be fill'd once a Month, as long as they are kept in the Cellar or Ware-house; because all Wines will waste in the Cask, and if they are not kept continually filled up, they will grow flat and heavy.

Stop up the Vent-hole as soon as you are sure the Wines have done working, and open them when you perceive them to work at any time. Observation and Discretion will best guide on these Occasions.

In *Champaigne* and *Burgundy*, such as are curious in their Wines keep Ware-houses as well as Cellars, for the Advantage of keeping their Wines cool, into which they move them alternately twice a Year; viz. from *April* to *November* they keep them in their Cellars, and from

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November to *April* in Ware-houses above Ground; such Ware-houses being found, by Experience, to be cooler in Winter than Cellars, being more exposed to the Rigour of the Season; whereas Cellars are coolest in Summer, being less exposed to the Warmth of the Sun and Air.

It is a known Rule, that the cooler Wines are kept, the longer they will last good, and be more grateful to the Palate; and it is best to keep them, as near as possible, in an equal Degree of Heat.

Wines kept too warm, are apt to turn sour.

About the Middle of *December*, if your Wines are settled after working, draw them off from the Lees for the first time into fresh Casks, cleansed and prepared as before directed; observing (as before) to keep them filled up, and continue undisturbed till the Middle of *February*, at which time draw them off again as before.

Do the like at the latter End of *March*, and again in *April*, before they are laid into the Cellars to keep them cool, as before directed.

Drawing off Wines frequently from the Lees, renders them brisk, lively, and sparkling in the Glafs; while the contrary produces a muddy Dreg or Sediment, makes them thick or dull, and sometimes ropy.

To remedy which, when they draw off the Wines first, take an Ounce of fine Icinglass to each fifty Gallons of Wine; beat it well with a Hammer; infuse it in about a Quart of Brandy or White-wine, till it is fully dissolved, which will be done soonest over a gentle Fire: strain it thro' a Sieve, till it is clear from any Foulness; then pour it into the Bung-hole, stirring it well with a Stick; but so as to move the Lees or Bottom as little as possible. This
Stirring

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Stirring puts the Wine into a Ferment, and the glutinous Parts of the Icinglass seize all the Foulness, and make it sink to the Bottom, and become fine in about seven Days.

When you bottle off Wines, observe to do it in Winter, on a frosty or dry Day; and in Summer, on a cool Day; hot, misty, or rainy Weather being detrimental to them.

When your Bottles are fill'd and well cork'd, strew the Floor of the Cellar or Ware-house with Sand or Saw dust about three Inches thick, laying your Bottles slope-wise thereon, and not setting them upright, which lets in Air. It will not be amiss to tie down the Corks, and to dip them, and the Mouth of the Bottles, into the Rosin and Pitch warm'd, which will prevent the Air getting in, or the Wine leaking out.

If the Wine in your Bottles should prove ropy, on occasion of the Grapes being too ripe, or any other Cause, move them out of the Cellars into the open Air (into a Garret, if you have one): it will recover them quickly.

In *Champaigne* they have an Invention of a leathern Pipe, which they affix to the Bung-hole of the full and empty Hogshead; and by which means, and a Pair of Bellows contrived for the Purpose, they shift their Wines without disturbing them; but our common way of the Crane being as good, it may serve as well, tho' that is particularly described in the Chapter treating of *Wine-press* in Letter W, and also the Form of them is there delineated on a Copper-plate.

These Rules and Instructions, if well observed, will be sufficient for the Management of Wines from the Gathering the Grapes, Pressing them, Casking, Fining, and Preserving the Wine, till it is drawn.

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Red-wines prick'd or four may be changed to White-wines, and become drinkable, by the following Method practis'd by the *London* Vintners:

When Red-wines are prick'd or eager, take three or four Gallons of new Milk; let it stand till it creams; skim it clean, and set it again to cream; and repeat the Skimming till no more Cream will arise, and the Milk appear blueish; then take the Whites of about eighteen or twenty Eggs; beat them well, and mix them well with the Milk; then pour it into your Cask of eager Red-wine, and with a Stick which reaches almost to the Bottom, stir it about as quick as you can for six or seven Minutes; then stop the Cask up close, and the red Colour will all sink to the Lees, and a clear White-wine will remain; which, if too weak or faint, may be helped and revived with *Aqua Vitæ*, Spirits of Wine, or other strong Mixture, till it is of Strength suitable to your Purpose, which must be guided by your Discretion and Judgment; let it stand some time to settle before you draw it.

This is a common Practice at this Day, tho' known to few, but professed Vintners and Wine-coopers.

Having thus given an Account of the different Practices of the Vignerons, Vintners, and Wine-coopers, in the Management of their several Wines, I shall next offer a few Things which have occur'd to me from some Observations and Experiments, relating to the making of Wines in *England*.

The Grapes being ripe, should be cut when they are perfectly dry, and carried into a large dry Room, where they must be spread upon Wheat-straw, in such a manner as not to lie upon each other; in this Place they may

may remain a Fortnight, three Weeks, or a Month, according as there is Conveniency, observing to let them have Air every Day, that the Moisture perspired from the Grapes may be carried off. Then, having the Presses and other Things in Order, you should proceed in the following manner: First, all the Grapes should be pull'd off the Bunches, and put into Tubs, being careful to throw away such as are mouldy, rotten, or not ripe, which, if mix'd with the others, will spoil the Wine; and if the Stalks of the Bunches are press'd with the Grapes, there will an austere Juice come from them, which will render the Wine acid and sharp: this, I fear, has spoil'd a great Quantity of Wine which was made in *England*, which, if otherwise managed, might have proved very good. For we find in *France*, and other Wine Countries, where Persons are desirous of having good Wine, they always pick the Grapes from off the Stalks, before they are pressed; tho' indeed the common Vignerons, who have more regard to the Quantity than the Quality of their Wines, do not practise this. But as in *England* we labour under the Inclemency of Climate, so we should omit nothing of Art, which may be necessary to help the Want of Sun.

The Grapes being thus carefully pick'd off, should be well press'd; and if it is design'd for Red-wine, the Husks and Stones should be put into the Liquor, (which must be put into a large Vat) where the whole should ferment together five or six Days; after which the Wine should be drawn off, and put into large Casks, leaving the Bung-hole open, to give Vent to the Air which is generated by the Fermentation. But it must be remark'd, that after

the Wine is press'd out, and put into the Vat with the Husks, if it does not ferment in a Day or two at most, it will be proper to add a little Warmth to the Room by Fires, which will soon put it into Motion; and for want of this it often happens, where People press their Wine, and leave it to ferment in open cold Places, that the Nights being cold, check the Fermentation, and so cause the Wine to be foul, and almost ever after upon the Fret. This Husbandry is much practis'd upon the *Rhine*, where they always have Stoves placed in the Houses where the Wine is fermented, wherein they keep Fires every Night, if the Season is cold, while the Wines are fermenting.

If White-wine is desired, then the Husks of the Grapes should not remain in the Liquor above twelve Hours, which will be long enough to set it a fermenting. And when it is drawn off, and put into other Vessels, it should not remain there above two Days before it is drawn off again; and this must be repeated three or four times, which will prevent its taking any Tincture from the Husks in fermenting.

When the greatest Fermentation is over, the Wine should be drawn off into fresh Casks, which must be filled within a very little of the Top; but the Bung-hole should be left open three Weeks or a Month, to give Vent to the generated Air; and as the Wine subsides in the Casks, so they should be carefully refilled with Wine of the same Sort from a Store Cask, which should be provided for that Purpose; but this must be done with much Care, lest by hastily refilling the Casks, the Scum which is naturally produced upon all new Wines, should be broken thereby, which will mix with
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the Wine, and foul it, causing it to take an ill Taste; therefore it would be proper to have a Funnel, which should have a Plate at the small End, bored full of little Holes, that the Wine may pass thro' in small Drops, which will prevent its breaking of the Scum.

After the Wine has remained in this State a Month or six Weeks, it will be necessary to stop up the Bung-hole, lest by exposing it too much to the Air, the Wine should grow flat, and lose much of its Spirit and Strength; but it must not be quite stopp'd up, but rather should have a Pewter or Tin-tube, of about half an Inch Bore, and two Feet long, placed in the middle of the Bung-hole. The Use of this Tube is to let the Air, which is generated by the Fermentation of the Wine, pass off, because this being of a rancid Nature, would spoil the Wine, if it were pent up in the Cask; and in this Tube there may always remain some Wine, to keep the Cask full, as the Wine shall subside; and, as it shall be necessary, the Wine in the Tube may be easily replenished. For want of rightly understanding this Affair, a great Quantity of the choicest Wines of *Italy*, and other Countries, have been lost. A great Complaint of this Misfortune I received from a very curious Gentleman in *Italy*, who says; "Such is the Nature of this Country Wines in general, (nor are the choicest *Chianti's* excepted) that at two Seasons of the Year, viz. the Beginning of *June* and *September*, the first when the Grapes are in Flower, and the other when they begin to ripen; some of the best Wines are apt to change (especially at the latter Season); not that they turn

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"eager, but take a most unpleasant Taste, like that of a rotten Vine-leaf, which render them not only unfit for Drinking, but also to make Vinegar of; and is called the *Settembrine*. And what is most strange, is, that one Cask, drawn out of the same Vat, shall be infected, and another remain perfectly good, and yet both have been kept in the same Cellar.

"As this Change happens not to Wines in Flasks, (tho' that will turn eager) I am apt to attribute it to some Fault in refilling the Cask, which must always be kept full; which, either by letting alone too long, till the Decrease be too great, and the Scum there naturally is on all Wines, thereby being too much dilated, is subject to break; or else, being broken by refilling the Cask, gives it that vile Taste. But against this there is a very strong Objection, i. e. that this Defect seizes the Wine only at a particular Season, viz. *September*, over which if it gets, it will keep good many Years. So that the Case is worthy the Inquiry of Naturalists, since it is evident that most Wines are more or less affected with this Distemper, during the first Year after making."

Upon receiving this Information from *Italy*, I consulted the Reverend Dr. *Hales* of *Teddington*, who was then making many Experiments on fermenting Liquors; and received from him the following curious Solution of the Cause of this Change in Wine, which I sent over to my Friend in *Italy*, who has tried the Experiment, and it has accordingly answered his Expectation, in preserving the Wine, which was thus managed, perfectly good: he has also communicated the Experiment

to several Vignerons in different Parts of *Italy*, who are repeating the same: which take in *Dr. Hales's* Words.

" From many Experiments which I made the last Summer, I find that all fermented Liquors do generate Air in large Quantities, during the Time of their Fermentation; for, from an Experiment made on twelve Cubic Inches of *Malaga Raisins*, put into eighteen Cubic Inches of Water the Beginning of *March*, there were 411 Cubic Inches of Air generated by the Middle of *April*; but afterwards, when the Fermentation was over, it resorb'd a great Quantity of this Air. And from forty-two Cubic Inches of Air from the Tun (which had fermented thirty-four Hours before it was put into the Bolt-head) had generated 639 Cubic Inches of Air, from the Beginning of *March* to the Middle of *June*, after which it resorb'd thirty-two Cubic Inches of Air: from whence it is plain, that fermented Liquors do generate Air, during the Time of their Fermentation, but afterwards they are in an imbibing State; which may, perhaps, account for the Alteration of the nice *Italian Wines*; for Wine, during the first Year after making, continues fermenting more or less, during which Time a great Quantity of Air is generated, until the Cold in *September* put a Stop to it; after which it is in an imbibing State. For the Air thus generated is of a rancid Nature, (as the *Grotto del Cano*) and will kill a living Animal, if put into it. So that if, during the Fermentation of the Wine, there are two Quarts of this rancid Air generated, which is closely pent up in

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" the upper Part of the Vessel, when the Cold shall stop the Fermentation, the Wine, by absorbing this Air, becomes foul, and acquires this rancid Taste; to prevent which I would propose the follow Experiment.



" Suppose the Vessel A fill'd with Wine; in the Bung-hole of this Vessel b, I would have a Glass Tube of two Feet long, and about two Inches Bore, fixed with a Pewter Socket closely cemented, so as that there may be no Vacuities on the Sides; and into this Tube should be another of about half an Inch Bore, closely fixed; the lower Tube should always be kept about half full of Wine, up to X, which will supply the Vessel, as the Wine therein shall subside, so that there will be no room left in the upper Part of the Vessel to contain generated Air, which will pass off thro' the upper small Tube, which must be always left open for this Purpose; and the Tube being small, there will be no Danger of letting in too much Air to the Wine.

" As the Wine in the lower Tube shall subside, it may be refilled by introducing a slender Funnel thro' the small Tube, down to the Scum upon the Surface of the Wine in the larger Tube, so as to prevent its being broken, by the Wine falling too violently upon it. This Experiment being tried with Glass Tubes, will give an Opportunity to observe what Impression the different States of the Air have upon the Wine, by its rising or falling in the Tubes; and if it succeeds, it may be afterwards

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“done by wooden or metal Tubes,
“which will not be in Danger of
“breaking.”

This curious Experiment, having succeeded where-ever it has yet been tried, will be of great Service in the Management of Wines, there being many useful Hints to be taken from it, particularly with regard to fermenting Wines; for since we find, that Wines too long fermented (especially those which are produced in cool Countries) do seldom keep well; so, by letting them stand in a cool Place, the Fermentation will be checked, which is agreeable to the Practice of the *Champagnoise*, who keep their Wines in Winter in Cellars above Ground; but when the Weather grows warmer in Spring, they then carry them down into their Vaults, where they are cooler than in the Cellars; and this Method of removing their Wines from the Cellars to the Vaults, and back again into the Cellars, as the Seasons of the Year shall require, is found of great Service in preserving the Wines in Perfection. For these Wines being weak, (when compared with those produced in more Southern Countries) have not Body enough to maintain them, if they are permitted to ferment all the succeeding Summer, which the Heat of the Season will promote, where the Wine is exposed to its Influence; and this surely must be worth the Trial by those who make Wine in this Country, since it is the Practice of the Northern Countries, which is the most proper for our Imitation, and not that of the more Southern.

But after the Wine has passed its Fermentation in the Vat, and is drawn off into the Casks, it will require something to feed upon, so that you should always preserve a few Branches of the best Grapes,

which may be hung up in a Room for that Purpose, until there be Occasion for them, when they should be picked off the Stalks, and two or three good Handfuls put into each Cask, according to their several Sizes: for want of this, many times People make use of other Things, which are by no means so proper for this Purpose.

The Vignerons of different Countries do also put various Sorts of Herbs into the Vat, when the Wine is fermenting, to give it different Flavours. Those of *Provence* make use of Sweet-marjoram, Balm, and other Sorts of aromatic Herbs; and upon the *Rhine* they always put some Handfuls of a peculiar Kind of Clary into the Vats, from whence arise the different Flavours we observe in Wines, which, it is probable, were made in the same manner, and from the same Sort of Grapes. How far this might be thought worth practising in *England*, a few Experiments would inform us; tho' it is to be questioned, whether these Herbs do mend the Wine, because it seems to obtain amongst the Vignerons, purely to alter the Flavour of their Wines, and make them agreeable to the Palate of their particular Customers. But however this be, it is yet certain, that there is some Art used to alter the Flavour of the Wine, in most of the different Wine Countries of *France*; for it is the same Sort of Grape, which the Curious always plant in *Orleans*, *Champaigne*, *Burgundy*, and *Bordeaux*; and how different these Wines are in their Flavour and Quality, every one who is acquainted with them, well knows; and this Difference can never be effected by the Situation of the Places, since there is no very great Difference in the Heat of those Countries; nor do I believe, their
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ifferent ways of making the Wine an alter their Flavour so much, specially those of *Orleans*, *Burgundy*, and *Bordeaux*, where there is little Difference in their Management; but in *Champaigne* there is this Difference from the rest, that they always cut their Grapes in a Morning before the Dew is gone off, or in cloudy Weather; whereas the Vignerons of all the other Places never cut any till they are perfectly dry, which may occasion a great Alteration in the Wine.

The Method commonly practised to give the red Colour to Wine, is to let it ferment a few Days upon the Skins, which they always observe to press two or three times, in order to make them discharge their Contents: but where a deep-coloured rough Wine is desired, there they put a Quantity of a certain Sort of Grape, whose Juice is red, into each Vat; this is well known in *England* by the Name of *Claret Grape*. The Leaves of this Vine always change to a deep-purple Colour, as the Fruit ripens; and the Grapes are of a fine blue Colour, with a Flue over them like fine Plums; but the Juice of them is very austere, especially if they are not very ripe.

This Red-wine will not require to be drawn off into Casks more than at first from the Vat; for it may remain in the same Vessels until it is fit to bottle off, which, I think, should not be done till the Wine is a Year old; for the greater Quantity of Wine there is in each Vessel, the more Force it will have, and so consequently be in less Danger of suffering from the Injuries of Weather, especially if the before-mentioned Method be practised. But where there are large Quantities of Wine preserved in close Vaults, People should be very cautious how they at

first enter them, after they have been shut up for some time, because the Air of this Vault will become rancid from the Mixture of the generated Air proceeding from the Wines, which has often killed People who have incautiously entered them.

From the many Vineyards which have of late Years been planted in *England*, there has as yet been very little Wine made, that has been by the best Judges thought tolerably good: which in a great measure may be attributed to the wrong Exposition of these Vineyards, and to the ill Method of planting and managing of them, as hath been before observed. But besides these, there has been a great want of Skill in the making, and after-managing of the Wines, there having been very few Persons who have proceeded in this Affair with good Judgment, or Attention enough to observe the Mistakes they have made in their several Experiments. There is one common Error, into which most Persons have fallen, who have attempted to make Wines in *England*; which is by endeavouring to imitate the Wines of this or that Country, whereas there are few of the Wines which are drank in *England*, which are not brewed up to suit the Palates of the Drinkers. Therefore the chief Care in making of Wine, should be to make plain good wholesome Liquor, without regarding the particular Flavour (or endeavouring to imitate *Burgundy* or *Champaigne* Wines, &c. as most People have done): in order to which, it is absolutely necessary to observe the following Directions; first, to have the Grapes as duly ripened as possible; then to gather them in a dry Season, as also to separate them from rotten or unripe Grapes, and to pull them from the Stalks before they are

pressed: these are the principal Directions for the first Part of the Work. What remains afterward to be observed, is, that the Wine ferments a proper time; for if it doth not ferment long enough, or to a proper Degree, it will be continually on the Fret, and therefore not clear or drinkable; and if it is suffered to ferment too long, the generous Spirit will be lost, and the Wine will soon become sour. Therefore on this Particular depends the greatest Nicety of Judgment in the making of Wine; and for this there can be no positive Instructions given; because the Seasons, and many other Accidents, may occasion a greater or less Time necessary for the Fermentation to be continued, in order to give the Wine its proper Strength and Flavour; so that it is only by a close Attention, and by many repeated Experiments, a Person will be enabled to judge rightly when the Wine has had a proper Fermentation, as also how to stop the Fermentation, when it is too violent, or continues too long.

The Method of judging when Wine has fermented its proper Time, is chiefly by the Taste; but it in a great measure depends on the Person who directs this Affair having a good Palate, to know when the Wine is in Perfection; for in hot dry Years it will require a much greater Fermentation, and to be continued longer, than in moist cool Seasons; and some particular Sorts of Grapes will take a longer time to ferment than others; so that it is by no means adviseable to mix different Sorts of Grapes together in the Press, because there are not any two Sorts but will require a different Degree of Fermentation; which will occasion the Wine to be always on the Fret.

After the Fermentation is over, there must be great Care taken to keep the Vessels full of Liquor; as also to leave a Vent in the Bung-hole of the Vessels, for the rancid Air, which is generated, to pass off; for the Reasons given in the former Volumes of the *Gardeners Dictionary*: tho' it will not be proper to add any other Sorts of foreign Wines to it, as is commonly practised, which seldom incorporate with this *English* Juice. But the best Method to add a Body to it, is to ferment the Juice, as soon as it is pressed, upon the Lees of good *Canary*, or some other strong generous Wines, which will greatly enrich the *English* Juice. But then great Care should be taken to get the Lees pure and unmixed, otherwise it will have a contrary Effect.

I have been informed by Persons who have resided in the Countries from whence we have the strongest Wines, that it is a common Method there in Practice, to distil a strong Spirit from the Husks of the Grapes, which they pour into the Wine, after it has fermented a proper time; which checks the Fermentation, and adds Strength to the Wine. This is at present universally practised amongst the *Vignerons* in *Portugal*, with this Difference only; that those who are the most curious in the Quality of their Wines, take particular Care, in drawing off the Spirit, to have it as pure as possible, as also to rectify it very high, that the Quantity added to the Wine may be small, and not so distinguishable on the Palate. And those Years when their Vintage proves very bad, it is a common Practice for these *Vignerons*, or at least Wine-coopers, who reside there, to procure great Quantities of Brandy from *France*, which they rectify to a higher Spirit, and mix
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with their Wines, before they ship them for *England*.

Since this is the Practice in the Wine Countries, it might be very well worth the Trial in *England*, to be informed of the Effects; because as our Seasons frequently prove bad, there will be a greater Necessity of adding a Body to the Wine, in order to prevent its turning acid, which is too frequently the Case with *English* Wines.

There are some Persons, who add Sugar, Honey, and other Mixtures, to their Wines, to render them palatable: but this is very wrong Practice; for it generally causes the Wine to fret, and always renders it disagreeable to the Stomach: therefore I would by no means advise the putting any other than a few of the very best foreign Raisins into the Wine, upon which the Wine may feed, which will be of great Use to preserve it.

In some of the Islands of the *Archipelago*, it has been long practised by the Inhabitants, to boil their Wines, which gives them a good Body, and preserves them a long time. These Wines were formerly much more esteemed in *England*, than they are at present, most Peoples Palates having been vitiated by the *French* Wines, which are thin and weak; so may be drank in greater Quantities, though the former more generous Wines are generally esteemed more wholesome, when taken moderately. This Practice may be very well worth Trial in *England*, because, in boiling, a great Quantity of the watery Parts will be thrown off, which may give the Wine a Body, and preserve it.

The adding of a Colour to the *English* Wine, is another thing which has employed the Thoughts of many Persons; some have added the Juice

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of Elder-berries, which, I have been informed, is also frequently practised abroad; others have added the Juice of Sloes, Mulberries, Blackberries, &c. but as none of these will add any Strength to the Wine, they must be used sparingly; for where a Colour is desired in Wine, it will be a better Method to make use of Turnsole, which is chiefly practised by the Vinters and Wine-coopers, to give a Colour to their pale Wines, than to add too large Quantities of either of those Juices. And as a small Quantity of Turnsole will be sufficient to colour a large Parcel of Wine; so it is likewise the cheapest Tincture which can be used.

The several Practices in Use amongst the Wine-coopers, both at home and abroad, to add different Flavours to their Wines, is a Mystery which they by no means care to divulge; for I have been informed by some Persons, who have been a little acquainted with their Arts, that they can brew up Wines of almost any Sort in such a manner as to imitate the Flavour of any other Sort of Wine: but if these Wines are kept at any time, they will become foul and ill-tasted; so that it may be easily supposed, that these Wines, are not very wholesome to drink, tho' they may have an agreeable Flavour for a time. The Practice of mixing one Sort of Wine with another, in order to give Strength, Brightness or Flavour, to Wines has been long in Use; and if there are no worse Mixtures, there may be little Danger in drinking of these Wines: but by the Effects which some Persons have observed, in those who have drank but small Quantities of these brewed Wines, there is great Reason to fear, that some unwholesome Things are often mixed with them.

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That the Practice of mixing of one Sort of Wine with another, is at present greatly used in *London*, is very obvious from the great Quantities of *Alicant* and other strong *Spanish* Wines, which are imported, and bought up by the Coopers and Merchants, who are rarely known to sell any of these Sorts of Wines, pure as they bought them. Also the whole Vintage of *Barabarr*, which is ingrossed by the *French* Wine-merchants in *London*, is supposed to be mixed with the low Growth of *French* Wines, to add Strength to them; since it is rarely, if ever, known they sell this Wine again, simple and unmixed.

Since, from what has been related in this Place, and also in the former Volume of the *Gardeners Dictionary*, it is plain, that most of the different Flavours of foreign Wines are adventitious; therefore whoever sets about to make Wine of *English* Grapes, should not be very solicitous to add particular Flavours to it; but rather have regard to the Wholsomeness, and to give it Strength enough to preserve it; which is what should be principally regarded, because afterward it will not be very difficult to add any particular Flavour, according to the Palate of the Owner, from the Instructions which have been exhibited. For Instance, that strong Flavour which is observed in some *French* Clarets, is given by adding some dried Elder-flowers to the Juice, when it is fermenting; and this may be added in a greater or less Degree, according to Persons Palates. The Flavour of *Rhenish* Wines, which many People admire, is given by adding of the Flowers of the yellow Clary, called by some Botanists, *Colus Jovis*. The Flavour of *Frontinac* Wine may be given by adding a Quantity of the Juice of white Elder-

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berries, with many other Mixtures, which need not be repeated here.

The other necessary Cautions to be taken, in order to preserve Wine clear, and in good Condition, besides what have been exhibited, are, first, that the Vault in which it is placed, be under a good Building, so as not to be affected by the external Air; for if it be exposed to Rain, there will be no Possibility of keeping Wines in it, though the Arch may be turned with the utmost Care; and this well clayed on the Top, and paved with square Stones over the Clay; as I have several times observed, where all these have been well performed: and yet the Vaults would not keep Wine in any tolerable Condition, when the Rains in Autumn have fallen. For if the Vaults are not so contrived, as that Heat and Cold may not alter the Temperature of the Air; Wines will never continue long good in them. Therefore it will be very proper to hang Thermometers up in the Vaults, by which the Alterations of Heat and Cold may be certainly known; and if it appears, that the Spirit is ever raised in the Summer, or sunk by cold in Winter, above five Divisions from the temperate Point, there will be small Hopes of preserving the Wine which is placed in them. The next Caution should be, not to put any Quantity of other fermenting Liquors into the same Vault with the Wine; for that will often affect the Wines which are near them. Nor should new Wines be carried into the Vaults where the old Wines are kept, because, when the new Wines are in a strong State of Fermentation, they will affect the whole Air of the Vaults, and alter its Temperature; whereby the old Wines will be often caused to fret, which will raise the Sediment, and foul the Wine;

X A

Wine ; so that many times it becomes so ill-tasted, as not to be, by the greatest Art, ever rendered so palatable as before. There are many other Things which will occur to a careful Observer, who is practised in managing of Wine, very well worthy to be considered by the Curious, which have never fallen within my Observation.



X A

XANTHIUM, Lesser Burdock.

The Characters are ;

It hath a flosculous Flower, consisting of many Florets, which are barren, out of which arises the Chive, supporting the Summit for the most part bifid. The Embryo's arise at a remote Distance from the Flowers on the same Plant, which become oblong Fruit, for the most part prickly, divided into two Cells, and pregnant with Seeds, which are also oblong.

The Species are ;

1. XANTHIUM. *Dod. pempt. 39.*
The Lesser Burdock.
2. XANTHIUM *Canadense majus, fructu aculeis aduncis munito. Inst. R. H.* A greater Kind of the Lesser Burdock from *Canada*, with a Fruit armed with crooked Prickles.
3. XANTHIUM *Lusitanicum laciniatum, validissimis aculeis munitum. Inst. R. H.* Jagged *Portugal* Lesser Burdock, armed with very strong Prickles.
4. XANTHIUM *Carolinense medium, fructu torosiore. Hort. Elth.* Middle *Carolina* Lesser Burdock, with a swelling Fruit.

The first Sort is sometimes found wild in *England*, thro' rarely ; but in several other Countries it grows

X A

plentifully by the Sides of Brooks, Ditches, and other standing Waters ; always delighting in a moist fat Soil. This Plant is placed in the Catalogue of Medicinals at the End of the *College Dispensatory*, tho' at present it is rarely used in Physic.

The second Sort was brought from *Canada*, where it grows very plentifully ; as also in many of the neighbouring Countries in *North America*.

The third Sort is a Native of *Portugal*, from whence the Seeds have been procured by some curious Botanists, who preserve it in their Gardens.

The fourth Sort was discovered by Mr. *Catesby*, in *South Carolina*, from whence he brought the Seeds to *Europe*.

All these are annual Plants, which, if permitted to scatter their Seeds in Autumn, will maintain themselves better than if they are sown in the Spring ; for the Seeds will remain in the Ground all the Winter, and the Plants will come up early the following Spring ; when they will require no farther Care but to thin them where they are too close, and to keep them clear from Weeds. In July their Flowers will begin to appear, and their Seeds will ripen in September.

The first is an humble Plant, seldom rising above a Foot high, but the second, third and fourth Sorts, will rise to be near three Feet high, and divide into many Branches. The third Sort is often later in ripening of its Fruit, than either of the former ; so that when the Autumns prove very cold, the Seeds do not come to Maturity ; therefore it will be proper to raise a Plant or two of this Kind on a Hot-bed early in the Spring ; which should be planted in Pots, to confine their Roots, and

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thereby prevent their growing too luxuriant, and cause them to put out their Flowers and Fruit much sooner; so that their Seeds will be perfectly ripe.

XERANTHEMUM, Eternal-flower.

To this *Article* must be added;

1. **XERANTHEMUM** *incanum, flore albo. H. R. Par.* Hoary Eternal-flower, with a white Flower.

2. **XERANTHEMUM** *flore simplici minimo, dilute purpurascente. H. L. Bat.* Eternal-flower with the least single, pale, purplish-coloured Flower.

3. **XERANTHEMUM** *flore simplici, ex albo & rubro obsoletis mixto. Hort. Cath.* Eternal-flower with a single Flower of a mixed Red and White.

4. **XERANTHEMUM** *flore pleno, ex albo & rubro obsoletis mixto. Hort. Cath.* Eternal-flower, with a double Flower mixed with White and Red.

5. **XERANTHEMUM** *orientale, flore minimo, calyce cylindraceo. Tourn. Cor.* Eastern Eternal-flower, with the least Flower, having a cylindrical Cup.

These Plants, being all of them very hardy, may be treated in the same manner as is directed in the former Volumes of the *Gardeners Dictionary*, for the Sorts there enumerated. The first, second and fifth Sorts here mentioned, are Plants of no very great Beauty; but are preserved in some Botanic Gardens for the sake of Variety. The third and fourth Sorts produce very pretty variegated Flowers, and are worthy of a Place in every good Garden; but at present these are very rare in the *English* Gardens, tho' in some of the Gardens in *Holland* they are pretty common, where the Flowers are dried and preserved to adorn

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their Rooms in the Winter-season.

XIPHION, Bulbous Iris, or *Fleur-de-lys*.

To this *Article* must be added;

1. **XIPHION** *latifolium acaulon odoratum, flore purpureo. Inst. R. H.* Broad-leaved sweet-scented Bulbous Iris, with a blue Flower, without a Stalk.

2. **XIPHION** *latifolium acaulon odoratum, flore purpureo. Inst. R. H.* Broad-leaved sweet-scented Bulbous Iris, with a purple Flower without a Stalk.

3. **XIPHION** *latifolium acaulon odoratum, flore lactei coloris. Inst. R. H.* Broad-leaved sweet-scented Bulbous Iris, with a milk-white Flower with a Stalk.

4. **XIPHION** *album, oris cæruleis. Inst. R. H.* White Bulbous Iris, with blue Borders.

5. **XIPHION** *Porcellana dictum. Inst. R. H.* Bulbous Iris, commonly called *Porcellana*.

6. **XIPHION** *Chamoletta Lavendulacea dictum. Inst. R. H.* Bulbous Iris, called in *Holland*, *Chamoletta Lavendulacea*.

7. **XIPHION** *Chamoletta dictum, flore cæruleo, versicolor. Inst. R. H.* Bulbous Iris, with a blue variegated Flower, called *Chamoletta*.

8. **XIPHION** *Chamoletta dictum, flore purpureo, versicolor. Inst. R. H.* Bulbous Iris called *Chamoletta*, with a purple variegated Flower.

9. **XIPHION** *latifolium caule donatum, flore cæruleo. Inst. R. H.* Broad-leaved Bulbous Iris, with a blue Flower furnished with a Stalk.

10. **XIPHION** *latifolium caule donatum, flore atro-purpurascente. Inst. R. H.* Broad-leaved Bulbous Iris, with a dark purple Flower, furnished with a Stalk.

11. **XIPHION** *latifolium caule donatum, flore cæruleo, lineis violaceis*
ant

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cut purpureis distincto. Inst. R. H. Broad-leaved Bulbous Iris, with a blue Flower, marked with violet and purple Lines, and furnished with a Stalk.

12. *XIPHION latifolium caule donatum, flore cinereo, violaceis striis distincto. Inst. R. H.* Broad-leaved Bulbous Iris, furnished with a Stalk, and an ash-coloured Flower, striped with Violet.

13. *XIPHION latifolium candidum. Inst. R. H.* Broad-leaved Bulbous Iris, with a white Flower.

14. *XIPHION foliis amplioribus maculatis, flore purpureo. Inst. R. H.* Bulbous Iris with larger spotted Leaves, and a purple Flower.

15. *XIPHION foliis amplioribus maculatis, flore violaceo. Inst. R. H.* Bulbous Iris with broader spotted Leaves, and a violet Flower.

16. *XIPHION foliis amplioribus maculatis, flore niveo. Inst. R. H.* Bulbous Iris with broader-spotted Leaves, and a snow-white Flower.

17. *XIPHION versicolor & multiflorum. Inst. R. H.* Many-leaved variegated Bulbous Iris.

18. *XIPHION majus & humilius, flore amplo flavo vario. Inst. R. H.* Greater and lower Bulbous Iris, with a large yellow variable Flower.

These Sorts of Bulbous Iris are to be treated in the same manner as those which are enumerated in the former Volumes of the *Gardeners Dictionary*, where there are full Instructions exhibited for their Management; wherefore I shall not repeat them in this Place.

XYLOSTEON, Upright Honey-suckle.

The Characters are;

The Flower consists of one Leaf, is tubulous, and divided into several Parts at the Top, and rests on the Empalement; these are for the most part produced by Pairs on the same Foot-stalk. The Empalement after-

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ward becomes a soft double Fruit or Berry, inclosing compressed roundish Seeds.

There is but one Species of this Plant at present known; viz.

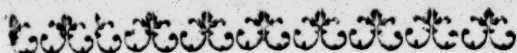
XYLOSTEON Pyrenaicum. Inst. R. H. Pyrenean Upright Honey-suckle.

This Plant was discovered by Dr. Tournefort on the Pyrenean Mountains, who has separated it from the *Chamæcerasus*, on account of the Shape of its Flower, which differs so little from the Flowers of those Plants, that it doth not deserve to be removed from them; since the Fruit agrees perfectly with those of that Genus.

It grows about three or four Feet high, and divides into many Branches, after the same manner as the other Upright Honey-suckles; the Flowers are small, and come out but sparsely on the Branches, but do not make any great Appearance. The usual Time of its flowering is in February, about the same time as the *Mezerion*; wherefore it may be admitted to have a Place in Gardens, amongst other hardy Exotic Shrubs, in order to make a Variety. This Plant may be propagated by Cuttings, which should be planted at Michaelmas on a shady Border, and in a strong loamy Soil; where, if they are duly watered in dry Weather, and kept clear from Weeds, they will make good Roots by the following Michaelmas, when they may be removed to the Places where they are designed to remain, which should be in a strong loamy Soil, and in a cool shady Situation. For if these Plants are planted on a light dry Soil, and in an open Situation, they will not live thro' one Summer, unless they are plentifully watered in dry Weather; and even with this Care, they will make but little Progress.

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ZACINTHA, Warted Succory.

The Characters are ;

It hath a flosculous Flower, consisting of many half Florets, constantly resting on the Embryo's, and included in a scaly Empalement. The Empalement afterward becomes a furrowed Head, whose single Parts, or Capsule, have swelling Seeds adorned with a Down.

We have but one Species of this Plant ; viz.

ZACINTHA sive cichorium verrucarium. Matth. Warted Succory.

This Plant grows abundantly in the Island of Zant, from whence it obtained the Name ; it also grows wild in several other warm Countries : but in England it is preserved in the Gardens of some Persons who are curious in Botany, for the sake of Variety ; there being little Beauty or Use at present known in this Plant.

It is an annual Plant, which perishes soon after the Seeds are ripe ; therefore must be sown every Year, or the Seeds permitted to scatter on the Ground in Autumn, which will come up in the Spring, and furnish a Supply of Plants more certainly than when the Seeds are sown in that Season ; for very often

Z A

the Seeds which are sown in the Spring, will remain in the Ground a whole Year before the Plants come up ; and sometimes they intirely miscarry ; whereas those Seeds which scatter in Autumn, or are sown at the same Season, rarely fail. When the Plants are come up, they will require no other Care, but to thin them where they are too close, so as to leave them about six or eight Inches asunder ; and after this to keep them clear from Weeds. In June these Plants will begin to flower, and their Seeds will ripen to the End of August, or the Beginning of September.

The Flowers of this Plant are small, and generally produced singly from the Divarications of the Branches, somewhat after the manner of Succory ; the Flowers are of a yellow Colour, and resemble those of Hawkweed. After the Flowers are past, the Empalement swells to a furrowed Head, somewhat resembling Warts or Excrescences, in which the Seeds are included.

When the Seeds of this Plant are sown in the Spring, it should be done in Drills made about two Feet asunder ; and when the Plants are come up, they should be thinned to the Distance of six Inches in the Rows ; because they do not thrive very well when they are transplanted, so that they should remain in the Places where they are sown ; and if they are kept clear from Weeds, they will require no other Care.



A N
I N D E X.
O F T H E

Things treated of in this Third Volume of the
GARDENERS DICTIONARY.

A.

A B I E S.
Abrotanum.
Absinthium.
Abutilon.
Acacia.
Acanthus.
Acer.
Acetosa.
Aconitum.
Adiantum.
Ageratum.
Agrimonia.
Agrimonoides.
Ahouai.
Alcea.
Alchimilla.
Alkekengi.
Allium.
Alyssoides.
Alysson.
Anacamperos.
Anagallis.
Anagyris.
Ananas.
Anguria.

Anonis.
Antirrhinum.
Aphaca.
Apium.
Arifarum.
Aristolochia.
Arum.
Arundo.
Asparagus.
Asperugo.
Asphodelus.
Aster.
Asteroides.
Astragalus.
Astrantia.
Atriplex.
Avena.
Avenue.
Aurantium.
Azederach.

B.

B Anifera.
Barba Jovis.
Barleria.
Bassella.

Bauhinia.

I N D E X.

Bauhinia.
Belladona.
Bellonia.
Bermudiana.
Bernardia.
Bessleria.
Betonica.
Bidens.
Bignonia.
Bihai.
Bocconia.
Bonduc.
Brassica.
Breynia.
Bryonia.
Buglossum.
Bugula.
Bulbocastanum.
Bupleurum.

C.

C **Aapeba.**
Cacalia.
Cacao.
Cachrys.
Cæsalpina.
Cainito.
Cakile.
Calaba.
Calceolus.
Campanula.
Camphorata.
Cannabina.
Capparis.
Cardamine.
Cardiaca.
Carduus.
Carlina.
Casia.
Castorea.
Celtis.
Centaurium minus.
Chamærhododendron.
Cinara.
Clutia.
Coa.
Conocarpodendron.
Convolvulus.

Conyza.
Copaiba.
Corallodendron.
Coriaria.
Coris.
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Crassula.
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Cuieta.
Cupressus.
Cururu.
Cydonia.
Cytisus.

D.

D **Alechampia.**
Damaconium.
Dentaria.
Diervilla.
Dioscorea.
Dodartia.
Dorstenia.
Douglasia.
Dracocephalon.
Dracunculus.

E.

E **Læagnus.**
Elephantopus.
Elephas.
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Ephedra.
Eupatoriophalacron.
Eupatorium.
Euphrasia.

F.

F **Agonia.**
Ficoidea.
Ficoides.
Fragaria.
Frangula.

Fraxinella.

I N D E X.

Fraxinella.
Fuchsia.

G.

G Alega.
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Garidella.
Genista.
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Globularia.
Glycyrrhiza.
Gnaphalodes.
Gramen.
Granadilla.
Guajabara,
Guanabanus.
Guazuma.
Guidonia.
Gundelia.

H.

H Æmanthus.
Hedysarum.
Heleniastrum.
Helenium.
Helianthemum.
Helleborine.
Helleborus.
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Hermodactylus.
Hernandia.
Hieracium.
Hordeum.
Horminum.
Hottonia.
Hura.
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Hypecoon.
Hypericum.
Hypocystis.
Hyslopus.

I.

J Acea.
Jacobea.

Jasminoides.
Jasminum.
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Imperatoria.
Inga.
Jonthlaspi.
Iris.
Ifora.
Juncus.
Juniperus.
Justitia.

K.

K Ali.
Karatas.
Kempfera.
Ketmia.

L.

L Achryma Jobi.
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Lapathum.
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Lathyrus.
Lavendula.
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Lepidium.
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Leucanthemum.
Lichen.
Ligustrum.
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Lilio-hyacinthus.
Lilio-narcissus.
Lilium.
Linaria.
Lippia.
Lobelia.
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M.

M Ancanilla.
Manihot.

Maranta.

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Melilotus.
Melocactus.
Menispermum.
Mentzelia.
Milleria.
Mimosa.
Mitella.
Monbin.
Montia.
Morina.
Moschatellina.
Muntingia.
Murucua.
Myagrurn.
Myxa.

N.

N Arcissus.
 Nicotiana.
 Nissolia.

O.

O Beliscotheca.
 Ochrus.
 Ocymum.
 Oldenlandia.
 Onagra.
 Ophioglossum.
 Ophris.
 Opuntia.
 Oreofelinum.
 Ornithogalum.
 Orobus.
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P.

P Æonia.
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 Pancratium.
 Panicum.
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 Parnassia.
 Paronychia.
 Partheniastrum.
 Pedicularis.

Pelecinus.
 Perefskia.
 Periclymenum.
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 Petiveria.
 Phlomis.
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 Phytolacca.
 Pimpinella.
 Pinus.
 Pisonia.
 Pittonia.
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 Plumbago.
 Plumeria.
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 Polium.
 Polygala.
 Polygonatum.
 Populus.
 Pseudoacacia.
 Ptarmica.
 Pulmonaria.
 Pulsatilla.
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 Pyrus.

Q.

Q Uercus.

R.

R Andia.
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 Rapuntium.
 Rauwolfia.
 Reseda.
 Rhamnus.
 Rhus.
 Ricinoides.
 Ricinus.
 Rondeletia.
 Rosa.
 Rubeola.
 Rubus.
 Ruellia.
 Ruyfchiana.

I N D E X.

S.

S Alicaria.
 Salicornia.
 Samoloides.
 Samolus.
 Sapindus.
 Sapota.
 Sarracena.
 Saururus.
 Saxifraga.
 Scabiosa.
 Scandix.
 Scolymus.
 Scorpioides.
 Scrophularia.
 Sedum.
 Senna-spuria.
 Serjania.
 Serratula.
 Sefeli.
 Sherardia.
 Sicyoides.
 Sideritis.
 Silaum.
 Siler.
 Sifymbrium.
 Sifyrinchium.
 Sium.
 Smilax.
 Solanum.
 Soldanella.
 Spartium.
 Spirea.
 Staphylodendron.
 Symphytum.

T.

T Abernæmontana.
 Tanacetum.
 Telephioides.
 Telephium.
 Terebinthus.
 Ternatea.
 Tetragonocarpus.

Thapsia.
 Thlaspidium.
 Thlaspi.
 Thymbra.
 Thymelæa.
 Tithymalus.
 Tordylium.
 Tormentilla.
 Toxicodendron.
 Trachelium.
 Tragacantha.
 Tragia.
 Tragofelinum.
 Tribulus.
 Trifolium.
 Triosteospermum.
 Triumphetta.
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V.

V Aleriana.
 Vanilla.
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 Veronica.
 Vicia.
 Viola.
 Virga aurea.
 Viscnaga.
 Ulmaria.
 Ulmus.
 Urtica.

W.

W Alks.
 Walls.
 WilderNESS.
 Wine.

X.

X Anthium.
 Xeranthemum.
 Xiphion.
 Xylosteon.

Z.

Z Acintha.

F I N I S.

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